Specifications

Eaton 134940

Catalog Number: 134940

Eaton DS7 Soft starter, 160 A, 200 - 480 V AC, Us= 110 - 230 V AC, Frame size FS4



General specifications

Product Name
Eaton DS7 Soft starter

Catalog Number
134940

EAN
4015081317554

Product Length/Depth
178 mm

Product Height
215 mm

Product Width
108 mm

Product Weight
3.7 kg

Certifications
CSA Class No.: 321106
UL
UL File No.: E251034
C-Tick
CSA-C22.2 No 0-M91
CSA22.2-14
CSA File No.: 2511305
GB 14048.6
UL 508
UkrSEPRO
IEC/EN 60947-4-2
CSA-C22.2 No 14-05
CE
CSA

Powering Business Worldwide

Features & Functions

Fitted with:

Internal bypass contacts

Internal bypass

Functions

Potential isolation between power and control sections

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

Single direction

Suppression of closing transients

Soft start function

Suppression of DC components for motors

General

Class

Other

Connection to SmartWire-DT

No

Degree of protection

IP20

NEMA 1

Frame size

FS4

Mains voltage - max

480 V

Mains voltage - min

200 V

Overvoltage category

II

Pollution degree

2

Radio interference class

Class A (EN 55011)

Suitable for

Branch circuits, (UL/CSA)

Type

Soft starter for three-phase loads

Voltage type

AC

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

Above 1000 m with 1 % derating per 100 m

Max. 2000 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

160 A

Rated operational voltage (Ue) - min

230 V

Rated operational voltage (Ue) - max

480 V

Short-circuit protection rating

NZMN2-M200, Type “1” coordination, Main conducting paths

3 x 170M5008, 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

50 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

125 HP

Rated operational power at 220/230 V, 50 Hz

45 kW

Rated operational power at 400 V, 50 Hz

90 kW

Terminal capacities

Terminal capacity (copper band)

2 x 9 x 0.8 mm, Main cables

10 x 16 x 0.8 mm, Main cables

Terminal capacity (flexible with ferrule)

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

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

Terminal capacity (solid)

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

2 x (4 - 70) mm², Main cables

1 x (4 - 185) mm², Main cables

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

Terminal capacity (solid/stranded AWG)

1 x (12 - 350 kcmil), Main cables

2 x (21 - 18), Control circuit cables

1 x (21 - 14), Control circuit cables

2 x (12 - 00), Main cables

Terminal capacity (stranded)

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

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

2 x (4 - 70) mm², Main cables

1 x (4 - 185) mm², Main cables

Tightening torque

14 Nm (> 10 mm²)

5 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, AC operated

Drop-out voltage

AC operated: 0 - 15 V, AC operated

Pick-up time

250 ms at AC

Pick-up voltage

108 - 253 V AC

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

110 V

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

230 V

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

110 V

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

230 V

Rated control supply voltage (Us) at DC - min

0 V

Rated control supply voltage (Us) at DC - max

0 V

Input/Output

Input current

4 mA (at 230 V AC, Digital inputs)

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

Soft start function

Application

1-phase motors: No

3-phase motors: Yes

Soft starting of three-phase asynchronous motors

Delay time

0 - 30 s, Soft start function, Ramp times

Ramp/run-up time

Rated control voltage (Uc)

110 - 230 V AC (-15 %/+10 %)

110 - 230 V AC

Rated operational current (Ie) at AC-11

1 A

1 - 30 s

Start voltage

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

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

Design verification

Equipment heat dissipation, current-dependent Pvid

30 W

Heat dissipation capacity Pdiss

0 W

Heat dissipation per pole, current-dependent Pvid

0 W

Rated operational current for specified heat dissipation (In)

160 A

Static heat dissipation, non-current-dependent Pvs

30 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.

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.

Resources

Brochures

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

Catalogs

Product Range Catalog Drives Engineering

Declarations of conformity

DA-DC-00004193.pdf

DA-DC-00003978.pdf

Drawings

eaton-semiconductor-contactors-swd-ds7-soft-starter-dimensions.eps

eaton-semiconductor-contactors-softstarter-ds7-3d-drawing-006.eps

eCAD model

DA-CE-ETN.DS7-342SX160N0-N

Installation instructions

IL03902005Z2021_06.pdf

Installation videos

Soft starter DS7 up to 32 A

Manuals and user guides

MN03901001Z_EN

mCAD model

DA-CD-ds7_4_100316

DA-CS-ds7_4_100316



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