



DS7-340SX016N0-L - Soft starter, 16 A, 200 - 480 V AC, 24 V AC/DC, Frame size FS2, Ambient temperature
Operation -40 - +40 °C



171744
DS7-340SX016N0-L

Overview

Specifications

Resources



Delivery program

Technical data

Design verification as
per IEC/EN 61439

Technical data ETIM 7.0

Approvals

Dimensions

DELIVERY PROGRAM

Description
With internal bypass contacts

Function
Soft starters for three-phase loads

Mains supply voltage (50/60 Hz) [U_N]
200 - 480 V AC

Supply voltage [U_s]
24 V AC/DC

Control voltage [U_c]
24 V AC
24 V DC

Assigned motor rating (Standard connection, In-Line)

at 400 V, 50 Hz [P]
7.5 kW

at 460 V, 60 Hz [P]
10 HP

Rated operational current

AC-53 [I_e]
16 A

Rated operational voltage [U_e]
200 V
230 V
400 V
480 V

Connection to SmartWire-DT
no

Frame size
FS2

TECHNICAL DATA

General

Standards
IEC/EN 60947-4-2
UL 508
CSA 22.2-14

Approvals
CE

Approvals
UL
CSA
C-Tick
UkrSEPRO

Climatic proofing
Damp heat, constant, to IEC 60068-2-3
Damp heat, cyclic, to IEC 60068-2-10
Cold to EN 60068-2-1

Ambient temperature
Operation [°]
-40 - +40
up to 60 at 2% derating per Kelvin temperature rise
°C

Ambient temperature
Storage [°]
-40 - +60 °C

Altitude
0 - 1000 m, above that 1 % derating per 100 m, up
to 2000 mm

Mounting position
Vertical

Degree of protection
Degree of Protection
IP20

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

Overvoltage category/pollution degree
II/2

Shock resistance
8 g/11 ms

Vibration resistance to EN 60721-3-2
2M2

Radio interference level (IEC/EN 55011)
B

Static heat dissipation, non-current-dependent [P_{vs}]
0.8 W

Weight
0.49 kg

Main conducting paths

Rated operating voltage [U_e]
200 - 480 V AC

Supply frequency [f_{LN}]
50/60 Hz

Rated operational current [I_e]
AC-53 [I_e]
16 A

Assigned motor rating (Standard connection, In-Line)
at 230 V, 50 Hz [P]
4 kW

Assigned motor rating (Standard connection, In-Line)
at 400 V, 50 Hz [P]
7.5 kW

Assigned motor rating (Standard connection, In-Line)
at 200 V, 60 Hz [P]
5 HP

Assigned motor rating (Standard connection, In-Line)
at 230 V, 60 Hz [P]
5 HP

Assigned motor rating (Standard connection, In-Line)
at 460 V, 60 Hz [P]
10 HP

Overload cycle to IEC/EN 60947-4-2
AC-53a
16 A: AC-53a: 3 - 5: 75 - 10

Overload cycle to IEC/EN 60947-4-2
Internal bypass contacts
☐

Short-circuit rating
Type "1" coordination
PKMD-16 (+ CL-PKZO)

Short-circuit rating
Type „2“ coordination (additional with the fuses for
coordination type „1“)
3 x 170M1364

Fuse base (number x part no.)
3 x 170H1007

Terminal capacities

Cable lengths
Solid
1 x (0.75 - 16)
2 x (0.75 - 10) mm²

Cable lengths
Flexible with ferrule
1 x (0.75 - 16)
2 x (0.75 - 10) mm²

Cable lengths
Stranded
1 x 16 mm²

Cable lengths
Solid or stranded
18 - 6 AWG

Cable lengths
Tightening torque
3.2 Nm

Cable lengths
Screw driver (PZ: Pozidriv)
PZ2; 1 x 6 mm mm

Control cables
Solid
1 x (0.5 - 2.5)
2 x (0.5 - 1.0) mm²

Control cables
Flexible with ferrule
1 x (0.5 - 1.5)
2 x (0.5 - 0.75) mm²

Control cables

Solid or stranded
18 - 10 AWG

Control cables
Tightening torque
1.2 Nm

Control cables
Screw driver
0,8 x 5,5

1 x 6 mm

Control circuit

Digital inputs
Control voltage
DC-operated
24 V DC +10 %/- 15 % V DC

Digital inputs
Current consumption 24 V
External 24 V
1.6 mA

Digital inputs
Pick-up voltage
DC-operated
17.3 - 27 V DC

Digital inputs
Pick-up voltage
AC-operated
17.3 - 27 V AC

Digital inputs
Drop-out voltage [$\times U_s$]
DC-operated
0 - 3 V DC

Digital inputs
Drop-out voltage [$\times U_s$]
AC-operated
0 - 3 V AC

Digital inputs
Pick-up time
DC-operated
250 ms

Digital inputs
Pick-up time
AC operated
250 ms

Digital inputs
Drop-out time
DC operated
350 ms

Regulator supply
Voltage [U_b]
24 V AC/DC +10 %/- 15 % V

Regulator supply
Current consumption [I_b]
50 mA

Regulator supply
Notes
External supply voltage

Relay outputs
Number
2 (TOR, Ready)

Relay outputs
Voltage range
250 V AC

Relay outputs
AC-11 current range
1 A, AC-11 A

Soft start function

Ramp times
Acceleration
Ramp time, max.
30 s

Ramp times
Deceleration
0 - 30 s

Start voltage (= turn-off voltage)
30100 %

Start pedestal
30 - 100 %

Fields of application
Fields of application
Soft starting of three-phase asynchronous motors

Fields of application
1-phase motors



Fields of application
3-phase motors
☐

Functions

Fast switching (semiconductor contactor)
- (minimum ramp time 1s)

Soft start function
☐

Reversing starter
External solution required

Suppression of closing transients
☐

Suppression of DC components for motors
☐

Potential isolation between power and control
sections
☐

DESIGN VERIFICATION AS PER IEC/EN 61439

Technical data for design verification

Rated operational current for specified heat

dissipation [I_r]
16 A

Heat dissipation per pole, current-dependent [P_{id}]
0 W

Equipment heat dissipation, current-dependent
[P_{id}]
0.8 W

Static heat dissipation, non-current-dependent [P_{is}]
0.8 W

Heat dissipation capacity [P_{diss}]
0 W

Operating ambient temperature min.
-40 °C

Operating ambient temperature max.
+40 °C

IEC/EN 61439 design verification

10.2 Strength of materials and parts
10.2.2 Corrosion resistance
Meets the product standard's requirements.

10.2 Strength of materials and parts
10.2.3.1 Verification of thermal stability of enclosures
Meets the product standard's requirements.

10.2 Strength of materials and parts
10.2.3.2 Verification of resistance of insulating materials to normal heat
Meets the product standard's requirements.

10.2 Strength of materials and parts
10.2.3.3 Verification of resistance of insulating materials to abnormal heat and fire due to internal electric effects
Meets the product standard's requirements.

10.2 Strength of materials and parts
10.2.4 Resistance to ultra-violet (UV) radiation
Meets the product standard's requirements.

10.2 Strength of materials and parts

10.2.5 Lifting

Does not apply, since the entire switchgear needs to be evaluated.

10.2 Strength of materials and parts

10.2.6 Mechanical impact

Does not apply, since the entire switchgear needs to be evaluated.

10.2 Strength of materials and parts

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 Insulation properties

10.9.2 Power-frequency electric strength

Is the panel builder's responsibility.

10.9 Insulation properties

10.9.3 Impulse withstand voltage

Is the panel builder's responsibility.

10.9 Insulation properties

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.

TECHNICAL DATA ETIM 7.0

Low-voltage industrial components (EG000017) / Soft starter (EC000640)

Electric engineering, automation, process control engineering / Low-voltage switch technology / Load breakout, motor breakout / Semiconductor motor controller or soft starter (ec1@ss10.0.1-27-37-09-07 [ACO300011])

Rated operation current I_e at 40 °C T_u
16 A

Rated operating voltage U_e
230 - 460 V

Rated power three-phase motor, inline, at 230 V
4 kW

Rated power three-phase motor, inline, at 400 V
7.5 kW

Rated power three-phase motor, inside delta, at
230 V

0 kW

Rated power three-phase motor, inside delta, at
400 V
0 kW

Function
Single direction

Internal bypass
Yes

With display
No

Torque control
No

Rated surrounding temperature without derating
40 °C

Rated control supply voltage U_s at AC 50HZ
24 - 24 V

Rated control supply voltage U_s at AC 60HZ
24 - 24 V

Rated control supply voltage U_s at DC
24 - 24 V

Voltage type for actuating
AC/DC

Integrated motor overload protection
No

Release class
Other

Degree of protection (IP)
IP20

Degree of protection (NEMA)
1

APPROVALS

Product Standards
IEC/EN 60947-4-2; GB 14048.6; UL 508; CSA-
C22.2 No 0-M91; CSA-C22.2 No 14-05 CE

UL File No.
E251034

CSA File No.
2511305

CSA Class No.
321106

Suitable for
Branch circuits

Max. Voltage Rating
480 V

Degree of Protection
IP20; UL/CSA Type 1

DIMENSIONS





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