134939
DS7-342SX135N0-N

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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_{LN}]
200 - 480 V AC

Supply voltage [U_S]
110 - 230 V AC

Control voltage [U_C]
110 - 230 V AC

Assigned motor rating (Standard connection, In-Line)

at 400 V, 50 Hz [P]
75 kW

at 460 V, 60 Hz [P]
100 HP

Rated operational current

AC-53 [I_e]
135 A

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

Connection to SmartWire-DT
no

Frame size
FS4

TECHNICAL DATA

General

Standards
IEC/EN 60947-4-2
UL 508
CSA22.2-14

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

Ambient temperature

Operation [ϑ]
-5 - +40
up to 60 at 2% derating per Kelvin temperature rise
°C

Ambient temperature
Storage [ϑ]
-25 - +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 (terminals IP00)

Degree of protection
Integrated
Protection type IP40 can be achieved on all sides with covers from the NZM range.

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)
A

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

Weight
3.7 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]
135 A

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

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

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

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

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

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

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

Short-circuit rating
Type “1” coordination
NZMN2-M160

Short-circuit rating
Type „2“ coordination (additional with the fuses for coordination type „1“)
3 x 170M4010

Fuse base (number x part no.)
3 x 170H3004

Terminal capacities

Cable lengths
Solid
1 x (4 - 185)
2 x (4 - 70) mm²

Cable lengths
Stranded
1 x (4 - 185)
2 x (4 - 70) mm²

Cable lengths
Solid or stranded
1 x (12 - 350 kcmil)
2 x (12 - 00) AWG

Cable lengths
Copper band
2 x 9 x 0.810 x 16 x 0.8 MM

Cable lengths
Tightening torque
5 (≤ 10 mm²); 14 (> 10 mm²) Nm

Cable lengths
Screwdriver (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
Stranded
1 x (0.5 - 1.5)
2 x (0.5 - 1.0) mm^2

Control cables
Solid or stranded
1 x (21 - 14)
2 x (21 - 18) AWG

Control cables
Tightening torque
0.4 Nm

Control cables
Screwdriver
0,6 x 3,5 mm

Control circuit

Digital inputs
Control voltage
AC operated
110 V AC - 15 % - 230 V AC +10 % V AC

Digital inputs
Current consumption 24 V
External 24 V
1.6 mA

Digital inputs
Current consumption 230 V
4 mA

Digital inputs
Pick-up voltage
AC operated
108 - 253 V AC

Digital inputs
Drop-out voltage [x U_s]
AC operated
0 - 15 V AC

Digital inputs
Pick-up time
AC operated
250 ms

Digital inputs
Drop-out time
AC operated
350 ms

Regulator supply
Voltage [U_s]
110 V AC -15 % - 230 V AC +10 % V

Regulator supply
Current consumption [I_e]
50 mA

Regulator supply
Current consumption at peak performance (close bypass) at 24 V DC [I_{Peak}]
0,6/50 A/ms

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
1 - 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
□

Notes

Rated impulse withstand voltage:

- 1.2 µs/50 µs (rise time/fall time of the pulse to IEC/EN 60947-2 or -3)
- Applies for control circuit/power section/enclosure

DESIGN VERIFICATION AS PER IEC/EN 61439

Technical data for design verification

Rated operational current for specified heat dissipation [I_n]
135 A

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

Equipment heat dissipation, current-dependent [P_{vid}]
24 W

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

Heat dissipation capacity [P_{diss}]
0 W

Operating ambient temperature min.
-5 °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 (ecl@ss10.0.1-27-37-09-07 [ACO300011])

Rated operation current Ie at 40 °C Tu
135 A

Rated operating voltage Ue
230 - 460 V

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

Rated power three-phase motor, inline, at 400 V
75 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 Us at AC 50HZ
110 - 230 V

Rated control supply voltage Us at AC 60HZ
110 - 230 V

Rated control supply voltage Us at DC
0 - 0 V

Voltage type for actuating
AC

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 marking

UL File No.
E251034

CSA File No.
2511305

CSA Class No.
321106

Specially designed for North America
No

Suitable for
Branch circuits

Current Limiting Circuit-Breaker
No

Max. Voltage Rating
480 V

Degree of Protection
IP20; UL/CSA Type 1

DIMENSIONS