



**134946**  
**DS7-34DSX009N0-D**

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## DELIVERY PROGRAM

Product range  
SmartWre-DT slave

Subrange  
SmartWre-DT Soft starters

Description  
With internal bypass contacts

Function  
Soft starters for three-phase loads

Mains supply voltage (50/60 Hz) [U<sub>N</sub>]  
200 - 480 V AC

Supply voltage [U<sub>s</sub>]  
24 V DC

Control voltage [U<sub>c</sub>]  
24 V DC

## Assigned motor rating (Standard connection, In-Line)

at 400 V, 50 Hz [P]  
4 kW

at 460 V, 60 Hz [P]  
5 HP

## Rated operational current

AC-53 [I<sub>e</sub>]  
9 A

Rated operational voltage [U<sub>e</sub>]  
200 V  
230 V  
400 V  
480 V

Connection to SmartWire-DT  
yes

Frame size  
FS1

## 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

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

Ambient temperature  
Storage [°]  
-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

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 [ $P_{vs}$ ]  
0.45 W

Weight  
0.41 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 [ $I_e$ ]  
9 A

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

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

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

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

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

Overload cycle to IEC/EN 60947-4-2  
AC-53a  
9 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-10 (+ CL-PKZO)

Short-circuit rating  
Type „2“ coordination (additional with the fuses for  
coordination type „1“)  
3 x 170M1362

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

## Terminal capacities

Cable lengths  
Solid  
1 x (0.75 - 4)  
2 x (0.75 - 2.5) mm<sup>2</sup>

Cable lengths  
Flexible with ferrule  
1 x (0.75 - 2.5)  
2 x (0.75 - 2.5) mm<sup>2</sup>

Cable lengths  
Solid or stranded  
18 - 10 AWG

Cable lengths  
Tightening torque  
1.2 Nm

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

Control cables  
Solid  
1 x (0.75 - 4)  
2 x (0.75 - 2.5) mm<sup>2</sup>

Control cables  
Flexible with ferrule  
1 x (0.75 - 2.5)  
2 x (0.75 - 2.5) mm<sup>2</sup>

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 % oder über SWDV 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  
Drop-out voltage [ $\times U_s$ ]  
DC operated  
0 - 3 V DC

Digital inputs  
Pick-up time  
DC operated  
250 ms

Digital inputs  
Drop-out time  
DC operated  
350 ms

Regulator supply  
Voltage [ $U_s$ ]  
24 V DC +10 %/- 15 % V

Regulator supply  
Current consumption [ $I_s$ ]  
50 mA

Regulator supply  
Notes  
External supply voltage

Relay outputs  
Number  
1 (TOR)

Relay outputs  
Voltage range  
=  $U_s$  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)  
30-100 %

Start pedestal  
30 - 100 %

Current limitation  
(0 - 8)  $\times I_e$

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

Current limitation  
●, with FKE

Fault memory  
8 Faults

Suppression of DC components for motors

Potential isolation between power and control sections

Communication Interfaces  
SmartWire-DT

## Notes

Rated impulse withstand voltage:

- 1.2  $\mu$ s/50  $\mu$ s (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 [ $I_n$ ]  
9 A

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

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

Static heat dissipation, non-current-dependent [ $P_{vs}$ ]  
0.45 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 (ec@ss10.0.1-27-37-09-07 [ACO300011])

Rated operation current  $I_e$  at 40 °C Tu  
9 A

Rated operating voltage  $U_e$   
230 - 460 V

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

Rated power three-phase motor, inline, at 400 V  
4 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  
0 - 0 V

Rated control supply voltage  $U_s$  at AC 60HZ  
0 - 0 V

Rated control supply voltage  $U_s$  at DC  
24 - 24 V

Voltage type for actuating  
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 marking

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



