DATASHEET - DS7-340SX009N0-L

Soft starter, 9 A, 200 - 480 V AC, 24 V AC/DC, Frame size FS1, Ambient temperature Operation -40 - +40 °C

Part no.	**DS7-340SX009N0-L**
	171742
EL Number (Norway)	**4110406**

General specifications

Product name	Eaton DS7 Soft starter
Part no.	DS7-340SX009N0-L
EAN	4015081680672
Product Length/Depth	94 millimetre
Product height	130 millimetre
Product width	45 millimetre
Product weight	0.41 kilogram
Certifications	UL File No.: E251034 UkrSEPRO CSA CSA-C22.2 No 14-05 IEC/EN 60947-4-2 UL CSA22.2-14 UL 508 CE GB 14048.6 C-Tick CSA File No.: 2511305 CSA Class No.: 321106 CSA-C22.2 No 0-M91
Product Tradename	DS7
Product Type	Soft starter
Product Sub Type	None
Catalog Notes	Regulator supply: External supply voltage External Reversing starter solution required Ambient Operating Temperature up to 60 at 2% derating per Kelvin temperature rise

Features & Functions

Fitted with:	Internal bypass Internal bypass contacts
Functions	Single direction Soft start function Potential isolation between power and control sections Min. ramp time 1 s - fast switching (semiconductor contactor) Suppression of closing transients Suppression of DC components for motors

General information

Class	Other
Connection to SmartWire-DT	No
Degree of protection	IP20 NEMA 1
Frame size	FS1
Mains voltage - min	200 V
Mains voltage - max	480 V
Overvoltage category	II
Pollution degree	2
Radio interference class	Class B (EN 55011)
Suitable for	Branch circuits, (UL/CSA)
Type	Soft starter for three-phase loads
Voltage type	AC/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	-40 °C
Ambient operating temperature - max	40 °C
Ambient storage temperature - min	-40 °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 Cold to EN 60068-2-1

Main conducting paths

Overload cycle	AC-53a: 3 - 5: 75 - 10
Rated operational current (Ie) at AC-53	9 A
Rated operational voltage (Ue) - min	230 V
Rated operational voltage (Ue) - max	480 V
Short-circuit protection rating	PKM0-10 (+ CL-PKZ0), Type “1” coordination, Main conducting paths 3 x 170M1362, 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	2 HP
Assigned motor power at 220/230 V, 60 Hz, 3-phase	3 HP
Assigned motor power at 460/480 V, 60 Hz, 3-phase	5 HP
Rated operational power at 220/230 V, 50 Hz	2.2 kW
Rated operational power at 400 V, 50 Hz	4 kW

Terminal capacities

Terminal capacity (flexible with ferrule)	2 x (0.75 - 2.5) mm^2, Control circuit cables 2 x (0.75 - 2.5) mm^2, Main cables 1 x (0.75 - 2.5) mm^2, Control circuit cables 1 x (0.75 - 2.5) mm^2, Main cables
Terminal capacity (solid)	2 x (0.75 - 2.5) mm^2, Control circuit cables 1 x (0.75 - 4) mm^2, Control circuit cables 1 x (0.75 - 4) mm^2, Main cables 2 x (0.75 - 2.5) mm^2, Main cables
Terminal capacity (solid/stranded AWG)	18 - 10, Main cables 18 - 10, Control circuit cables
Screwdriver size	0.6 x 5.5 mm/1 x 6 mm, Terminal screws, Control circuit cables PZ2, 1 x 6 mm, Terminal screw, Standard screwdriver
Tightening torque	1.2 Nm 1.2 Nm, Screw terminals, Control circuit cables

Control circuit

Current consumption	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	AC operated: 0 - 3 V, AC operated 0 - 3 V, DC operated
Pick-up time	250 ms at AC 250 ms at DC
Pick-up voltage	17.3 - 27 V AC 17.3 - 27 V DC
Rated control supply voltage (Us) at AC, 50 Hz - min	24 V
Rated control supply voltage (Us) at AC, 50 Hz - max	24 V
Rated control supply voltage (Us) at AC, 60 Hz - min	24 V
Rated control supply voltage (Us) at AC, 60 Hz - max	24 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	1 Relay Output (TOR)
Output voltage	24 V AC/DC
Protection	Finger and back-of-hand proof, Protection against direct contact
Rated control voltage (Uc)	24 V DC

			24 V DC (-15 %/+10 %) 24 V AC
Rated operational current (Ie) at AC-11			1 A

Soft start function

Application			Soft starting of three-phase asynchronous motors 3-phase motors: Yes 1-phase motors: No
Delay time			0 - 30 s, Soft start function, Ramp times
Ramp/run-up time			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			0.45 W
Heat dissipation capacity Pdiss			0 W
Heat dissipation per pole, current-dependent Pvid			0 W
Rated operational current for specified heat dissipation (In)			9 A
Static heat dissipation, non-current-dependent Pvs			0.45 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.

Technical data ETIM 9.0

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@ss13-27-37-09-07 [ACO300016])

Rated operation current Ie at 40 °C Tu		A	9
Rated operating voltage Ue		V	230 - 480
Rated power three-phase motor, inline, at 230 V		kW	2.2
Rated power three-phase motor, inline, at 400 V		kW	4
Rated power three-phase motor, inside delta, at 230 V		kW	0
Rated power three-phase motor, inside delta, at 400 V		kW	0
Function			Single direction
Internal bypass			Yes
With display			No
Torque control			No
Rated surrounding temperature without derating		°C	40
Rated control supply voltage AC 50 Hz		V	24 - 24

Rated control supply voltage AC 60 Hz		V	24 - 24
Rated control supply voltage DC		V	24 - 24
Voltage type for actuating			AC/DC
Integrated motor overload protection			No
Release class			Other
Degree of protection (IP)			IP20
Degree of protection (NEMA)			1

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