DATASHEET - DS7-340SX160N0-L

Soft starter, 160 A, 200 - 480 V AC, 24 V AC/DC, Frame size FS4, Ambient temperature Operation -40 - +40 °C

Part no.	**DS7-340SX160N0-L**
	171753
EL Number (Norway)	**4110417**

General specifications

Product name	Eaton DS7 Soft starter
Part no.	DS7-340SX160N0-L
EAN	4015081680771
Product Length/Depth	178 millimetre
Product height	215 millimetre
Product width	105 millimetre
Product weight	3.799 kilogram
Certifications	UL CSA Class No.: 321106 CSA-C22.2 No 0-M91 CSA22.2-14 CSA-C22.2 No 14-05 C-Tick IEC/EN 60947-4-2 UkrSEPRO GB 14048.6 UL 508 UL File No.: E251034 CSA File No.: 2511305 CE CSA
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 contacts Internal bypass
Functions	Single direction Suppression of DC components for motors Min. ramp time 1 s - fast switching (semiconductor contactor) Potential isolation between power and control sections Soft start function Suppression of closing transients

General information

Class	Other
Connection to SmartWire-DT	No
Degree of protection	NEMA 1 IP20
Frame size	FS4
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, cyclic, to IEC 60068-2-30 Cold to EN 60068-2-1 Damp heat, constant, to IEC 60068-2-3

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)	10 x 16 x 0.8 mm, Main cables 2 x 9 x 0.8 mm, Main cables
Terminal capacity (flexible with ferrule)	1 x (0.5 - 1.5) mm^2, Control circuit cables 2 x (0.5 - 0.75) mm^2, Control circuit cables
Terminal capacity (solid)	1 x (0.5 - 2.5) mm^2, Control circuit cables 1 x (4 - 185) mm^2, Main cables 2 x (4 - 70) mm^2, Main cables 2 x (0.5 - 1.0) mm^2, Control circuit cables
Terminal capacity (solid/stranded AWG)	1 x (21 - 14), Control circuit cables 2 x (21 - 18), Control circuit cables 1 x (12 - 350 kcmil), Main cables 2 x (12 - 00), Main cables
Terminal capacity (stranded)	1 x (0.5 - 1.5) mm^2, Control circuit cables 2 x (0.5 - 1.0) mm^2, Control circuit cables 2 x (6 - 25) mm^2, Main cables 1 x (25 - 70) mm^2, Main cables
Screwdriver size	PZ2, 1 x 6 mm, Terminal screw, Standard screwdriver 0.6 x 3.5 mm, Terminal screws, Control circuit cables
Tightening torque	9 Nm (> 10 mm^2) 0.4 Nm, Screw terminals, Control circuit cables 6 Nm (≤ 10 mm^2)

Control circuit

Current consumption	50 mA, Control circuit, Regulator supply 1.6 mA, Control circuit, Digital inputs, External 24 V 0,6 A/50 ms, Control circuit, Regulator supply at peak performance (close bypass) at 24 V DC
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		2 Relay Outputs (TOR, Ready)
Output voltage		250 V AC (relay outputs)
Protection		Finger and back-of-hand proof, Protection against direct contact
Rated control voltage (Uc)		24 V DC 24 V AC 24 V DC (-15 %/+10 %)
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		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.

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	160
Rated operating voltage Ue	V	230 - 480
Rated power three-phase motor, inline, at 230 V	kW	54
Rated power three-phase motor, inline, at 400 V	kW	90
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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