

Soft starter, 160 A, 200 - 480 V AC, Us= 24 V AC/DC, Frame size FS4



Part no. DS7-340SX160N0-N
134922
EL Number 4134207
(Norway)

General specifications		
Product name		Eaton DS7 Soft starter
Part no.		DS7-340SX160N0-N
EAN		4015081317370
Product Length/Depth		178 millimetre
Product height		215 millimetre
Product width		108 millimetre
Product weight		3.7 kilogram
Certifications		UL CSA22.2-14 IEC/EN 60947-4-2 CSA-C22.2 No 0-M91 UkrSEPRO CSA Class No.: 321106 UL 508 GB 14048.6 CE UL File No.: E251034 C-Tick CSA CSA File No.: 2511305 CSA-C22.2 No 14-05 CSA UL
Product Tradename		DS7
Product Type		Soft starter
Product Sub Type		None
Catalog Notes		Ambient Operating Temperature up to 60 at 2% derating per Kelvin temperature rise External Reversing starter solution required Regulator supply: External supply voltage
Features & Functions		
Fitted with:		Internal bypass Internal bypass contacts
Functions		Suppression of closing transients 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
General information		
Class		Other
Connection to SmartWire-DT		No
Degree of protection		IP20 NEMA 1
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	-5 °C
Ambient operating temperature - max	40 °C
Ambient storage temperature - min	-25 °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
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	3 x 170M5008, Type „2“ coordination (additional with the fuses for coordination type „1“), Main conducting paths NZMN2-M200, Type “1” coordination, 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)	2 x (0.5 - 0.75) mm ² , Control circuit cables 1 x (0.5 - 1.5) mm ² , Control circuit cables
Terminal capacity (solid)	2 x (4 - 70) mm ² , Main cables 1 x (0.5 - 2.5) mm ² , Control circuit cables 1 x (4 - 185) 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)	2 x (0.5 - 1.0) mm ² , Control circuit cables 1 x (4 - 185) mm ² , Main cables 2 x (4 - 70) mm ² , Main cables 1 x (0.5 - 1.5) mm ² , Control circuit 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	14 Nm (> 10 mm ²) 0.4 Nm, Screw terminals, Control circuit cables 5 Nm (≤ 10 mm ²)
Control circuit	
Current consumption	0,6 A/50 ms, Control circuit, Regulator supply at peak performance (close bypass) at 24 V DC 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 DC 250 ms at AC
Pick-up voltage	17.3 - 27 V DC 17.3 - 27 V AC
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 DC (-15 %/+10 %) 24 V AC 24 V AC (-15 %/+10 %)
Rated operational current (Ie) at AC-11		1 A
Soft start function		
Application		1-phase motors: No 3-phase motors: Yes Soft starting of three-phase asynchronous motors
Delay time		0 - 30 s, Soft start function, Ramp times
Ramp/run-up time		1 - 30 s
Start voltage		Min. 30 %, Soft start function, Start voltage = turn-off voltage Max. 100 %, Soft start function, Start voltage = turn-off voltage
Design verification		
Equipment heat dissipation, current-dependent Pvid		30 W
Heat dissipation capacity Pdis		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 [AC0300016])		
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	45
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