



## Soft starter, 3p, 4A, 200-480VAC, us=24VAC/DC

**Part no.** DS7-340SX004N0-N  
**Article no.** 134847  
**Catalog No.** DS7-340SX004N0-N

### Delivery programme

Description			With internal bypass contacts
Function			Soft starters for three-phase loads
Mains supply voltage (50/60 Hz)	U <sub>LN</sub>	V AC	200 - 480
Supply voltage	U <sub>s</sub>		24 V AC/DC
Control voltage	U <sub>C</sub>		24 V AC 24 V DC
Assigned motor rating (Standard connection, In-Line)			
at 400 V, 50 Hz	P	kW	1.5
at 460 V, 60 Hz	P	HP	2
Rated operational current			
Device (AC-53)	I <sub>e</sub>	A	4
Startup class			CLASS 10 (star-delta replacement) CLASS 20 (heavy starting duty 3 x I <sub>e</sub> for 45 s)
Rated operational voltage	U <sub>e</sub>		200 V 230 V 400 V 480 V
Connection to SmartWire-DT			no

### 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

### 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		°C	
Operation	θ	°C	-5 - +40 up to 60 at 2% derating per Kelvin temperature rise
Storage	θ	°C	-25 - +60
Altitude		m	0 - 1000 m, above that 1 % derating per 100 m, up to 2000 m
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 <sub>vs</sub>	W	0.2
Weight		kg	0.35

### Main conducting paths

Rated operating voltage	U <sub>e</sub>	V AC	200 - 480
Supply frequency	f <sub>LN</sub>	Hz	50/60
Rated operational current	I <sub>e</sub>	A	
Device (AC-53)	I <sub>e</sub>	A	4
Assigned motor rating (Standard connection, In-Line)			
at 230 V, 50 Hz	P	kW	0.75
at 400 V, 50 Hz	P	kW	1.5
at 200 V, 60 Hz	P	HP	0.75
at 230 V, 60 Hz	P	HP	1
at 460 V, 60 Hz	P	HP	2
Overload cycle to IEC/EN 60947-4-2			
AC-53a			4 A: AC-53a: 3 - 5: 75 - 10
Internal bypass contacts			✓
Short-circuit rating			
Type "1" coordination			PKM0-4 (+ CL-PKZ0)
Type „2“ coordination (additional with the fuses for coordination type „1“)			3 x 170M1359
Fuse base (number x part no.)			3 x 170H1007

### Terminal capacities

Cable lengths			
Solid		mm <sup>2</sup>	1 x (0.75 - 4) 2 x (0.75 - 2.5)
Flexible with ferrule		mm <sup>2</sup>	1 x (0.75 - 2.5) 2 x (0.75 - 2.5)
Solid or stranded		AWG	18 - 10
Tightening torque		Nm	1.2
Screwdriver (PZ: Pozidriv)		mm	PZ2; 1 x 6 mm
Control cables			
Solid		mm <sup>2</sup>	1 x (0.75 - 4) 2 x (0.75 - 2.5)
Flexible with ferrule		mm <sup>2</sup>	1 x (0.75 - 2.5) 2 x (0.75 - 2.5)
Solid or stranded		AWG	18 - 10
Tightening torque		Nm	1.2
Screwdriver		mm	0,8 x 5,5 1 x 6

### Control circuit

Digital inputs			
Control voltage			
DC-operated		V DC	24 V DC +10 %/- 15 %
AC operated		V AC	24 V AC +10 %/- 15 %
Current consumption 24 V		mA	
External 24 V		mA	1.6
Pick-up voltage		x U <sub>s</sub>	
DC-operated		V DC	17.3 - 27
AC operated		V AC	17.3 - 27
Drop-out voltage	x U <sub>s</sub>		
DC operated		V DC	0 - 3
AC operated		V AC	0 - 3

Pick-up time			
DC operated		ms	250
AC operated		ms	250
Drop-out time			
DC operated		ms	350
Regulator supply			
Voltage	$U_s$	V	24 V AC/DC +10 %/ - 15 %
Current consumption	$I_e$	mA	50
Notes			External supply voltage
Relay outputs			
Number			1 (TOR)
Voltage range		V AC	$= U_s$
AC-11 current range		A	1 A, AC-11

## Soft start function

Ramp times			
Acceleration		s	1 - 30
Deceleration		s	0 - 30
Start voltage (= turn-off voltage)		%	30 - 100
Start pedestal		%	30 - 100
Fields of application			
Fields of application			Soft starting of three-phase asynchronous motors
1-phase motors			●
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:

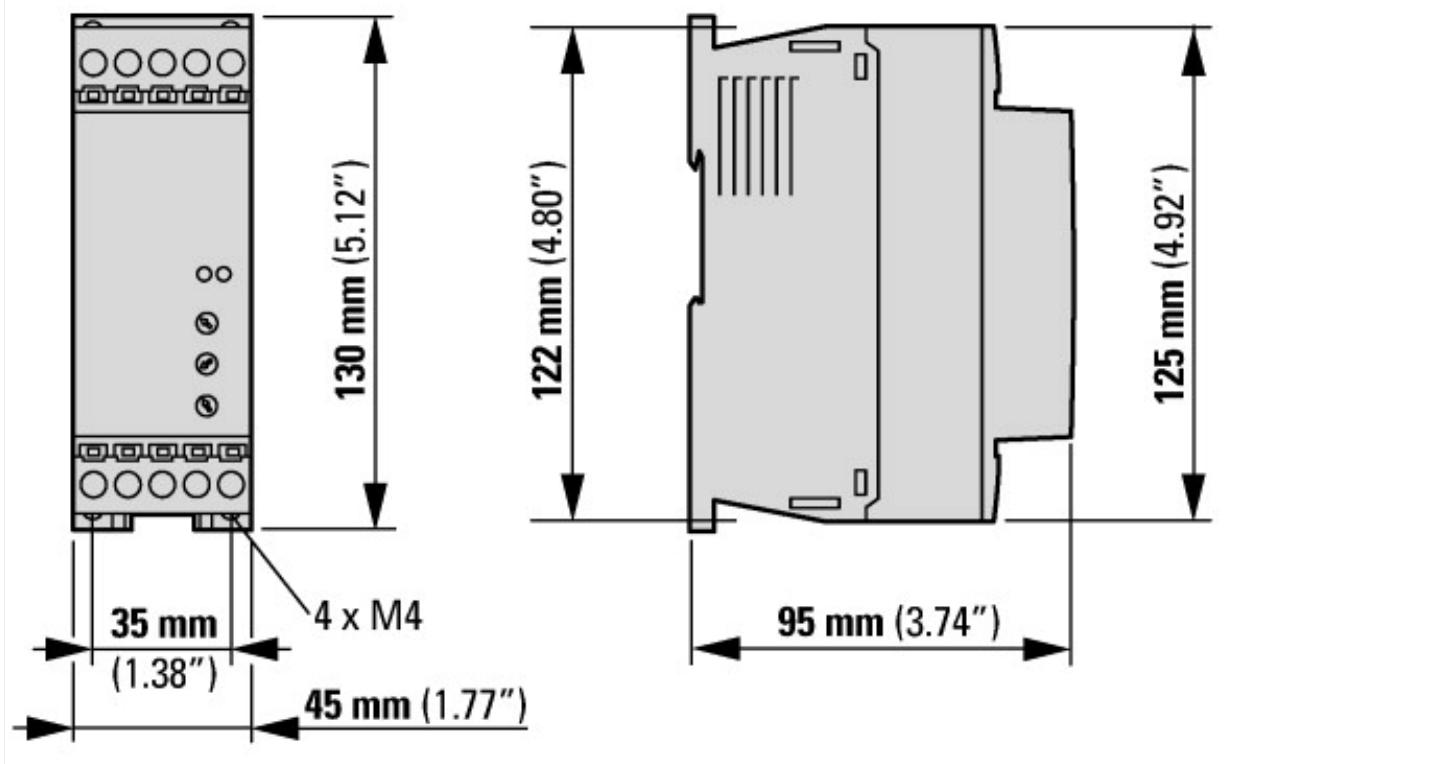
- 1.2  $\mu$ s/50  $\mu$ s (rise time/fall time of the pulse to IEC/EN 60947-2 or -3)
- Applies for control circuit/power section/enclosure

## Data for design verification according to IEC/EN 61439

Technical data for design verification			
Rated operational current for specified heat dissipation	$I_n$	A	4
Equipment heat dissipation, current-dependent	$P_{vid}$	W	0.2
Static heat dissipation, non-current-dependent	$P_{vs}$	W	0.2
IEC/EN 61439 design verification			
10.2 Strength of materials and parts			
10.2.2 Corrosion resistance			Meets the product standard's requirements.
10.2.3.1 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 Verification of resistance of insulating materials to abnormal heat and fire due to internal electric 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 Insulation properties	
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.

## Dimensions



## Additional product information (links)

### IL03902003Z Instructions for DS7 Soft Starter

IL03902003Z Instructions for DS7 Soft Starter [ftp://ftp.moeller.net/DOCUMENTATION/AWA\\_INSTRUCTIONS/IL03902003Z2012\\_06.pdf](ftp://ftp.moeller.net/DOCUMENTATION/AWA_INSTRUCTIONS/IL03902003Z2012_06.pdf)

### MN03901001Z Manual DS7 soft starters

MN03901001Z Handbuch Softstarter DS7 - Deutsch [ftp://ftp.moeller.net/DOCUMENTATION/AWB\\_MANUALS/MN03901001Z\\_DE.pdf](ftp://ftp.moeller.net/DOCUMENTATION/AWB_MANUALS/MN03901001Z_DE.pdf)

MN03901001Z Manual DS7 soft starters - English [ftp://ftp.moeller.net/DOCUMENTATION/AWB\\_MANUALS/MN03901001Z\\_EN.pdf](ftp://ftp.moeller.net/DOCUMENTATION/AWB_MANUALS/MN03901001Z_EN.pdf)

CA04020001Z\_EN-INT Product range catalog: Efficient Engineering for starting and controlling motors. [http://www.eaton.eu/ecm/groups/public/@pub/@europe/@electrical/documents/content/pct\\_1095238.pdf](http://www.eaton.eu/ecm/groups/public/@pub/@europe/@electrical/documents/content/pct_1095238.pdf)