



Soft starter, 12 A, 200 - 480 V AC, 24 V AC/DC, Frame size FS1, Ambient temperature Operation -40 - +40 °C

Part no. **DS7-340SX012N0-L**
 Catalog No. **171743**
 Eaton Catalog No. **DS7-340SX012N0-L**
 EL-Nummer **0004110407**
 (Norway)

Delivery program

| | | | |
|---|----------|------|-------------------------------------|
| Description | | | With internal bypass contacts |
| Function | | | Soft starters for three-phase loads |
| Mains supply voltage (50/60 Hz) | U_{LN} | V AC | 200 - 480 |
| Supply voltage | U_s | | 24 V AC/DC |
| Control voltage | U_C | | 24 V AC 24 V DC |
| Assigned motor rating (Standard connection, In-Line) | | | |
| at 400 V, 50 Hz | P | kW | 5.5 |
| at 460 V, 60 Hz | P | HP | 10 |
| Rated operational current | | | |
| AC-53 | I_e | A | 12 |
| Rated operational voltage | U_e | | 200 V 230 V 400 V 480 V |
| Connection to SmartWire-DT | | | no |
| Frame size | | | FS1 |

Technical data

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 Cold test as per EN 60068-2-4 |
| Ambient temperature | | | |
| Operation | θ | °C | -40 - +40 up to 60 at 2% derating per Kelvin temperature rise |
| Storage | θ | °C | -40 - +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_{vs} | W | 0.6 |
| Weight | | kg | 0.44 |

Main conducting paths

| | | | |
|-------------------------|-------|------|-----------|
| Rated operating voltage | U_e | V AC | 200 - 480 |
|-------------------------|-------|------|-----------|

| | | | |
|---|----------|----|------------------------------|
| Supply frequency | f_{LN} | Hz | 50/60 |
| Rated operational current | I_e | A | |
| AC-53 | I_e | A | 12 |
| Assigned motor rating (Standard connection, In-Line) | | | |
| at 230 V, 50 Hz | P | kW | 3 |
| at 400 V, 50 Hz | P | kW | 5.5 |
| at 200 V, 60 Hz | P | HP | 3 |
| at 230 V, 60 Hz | P | HP | 3 |
| at 460 V, 60 Hz | P | HP | 10 |
| Overload cycle to IEC/EN 60947-4-2 | | | |
| AC-53a | | | 12 A: AC-53a: 3 - 5: 75 - 10 |
| Internal bypass contacts | | | ✓ |
| Short-circuit rating | | | |
| Type "1" coordination | | | PKM0-12 (+ CL-PKZ0) |
| 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 | | mm ² | 1 x (0.75 - 4) 2 x (0.75 - 2.5) |
| Flexible with ferrule | | mm ² | 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 ² | 1 x (0.75 - 4) 2 x (0.75 - 2.5) |
| Flexible with ferrule | | mm ² | 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 % |
| Current consumption 24 V | | | |
| External 24 V | | mA | 1.6 |
| Pick-up voltage | | | |
| DC-operated | | x U_s | |
| | | V DC | 17.3 - 27 |
| AC operated | | V AC | 17.3 - 27 |
| Drop-out voltage | | | |
| | x U_s | | |
| 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 | |
| Ramp time, max. | s | 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 | | ✓ |

Design verification as per IEC/EN 61439

| | | | |
|--|------------|----|--|
| Technical data for design verification | | | |
| Rated operational current for specified heat dissipation | I_n | A | 12 |
| Heat dissipation per pole, current-dependent | P_{vid} | W | 0 |
| Equipment heat dissipation, current-dependent | P_{vid} | W | 0.6 |
| Static heat dissipation, non-current-dependent | P_{vs} | W | 0.6 |
| Heat dissipation capacity | P_{diss} | W | 0 |
| Operating ambient temperature min. | | °C | -40 |
| Operating ambient temperature max. | | °C | 40 |
| 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 | | | |
| 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 | | | |
| 10.2.5 Lifting | | | Does not apply, since the entire switchgear needs to be evaluated. |
| 10.2.6 Mechanical impact | | | |
| 10.2.7 Inscriptions | | | Meets the product standard's requirements. |
| 10.3 Degree of protection of ASSEMBLIES | | | |
| 10.4 Clearances and creepage distances | | | |
| 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 | | | |
| 10.7 Internal electrical circuits and connections | | | |
| 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 | | | |
| 10.11 Short-circuit rating | | | The panel builder is responsible for the temperature rise calculation. Eaton will provide heat dissipation data for the devices. |
| | | | 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. |

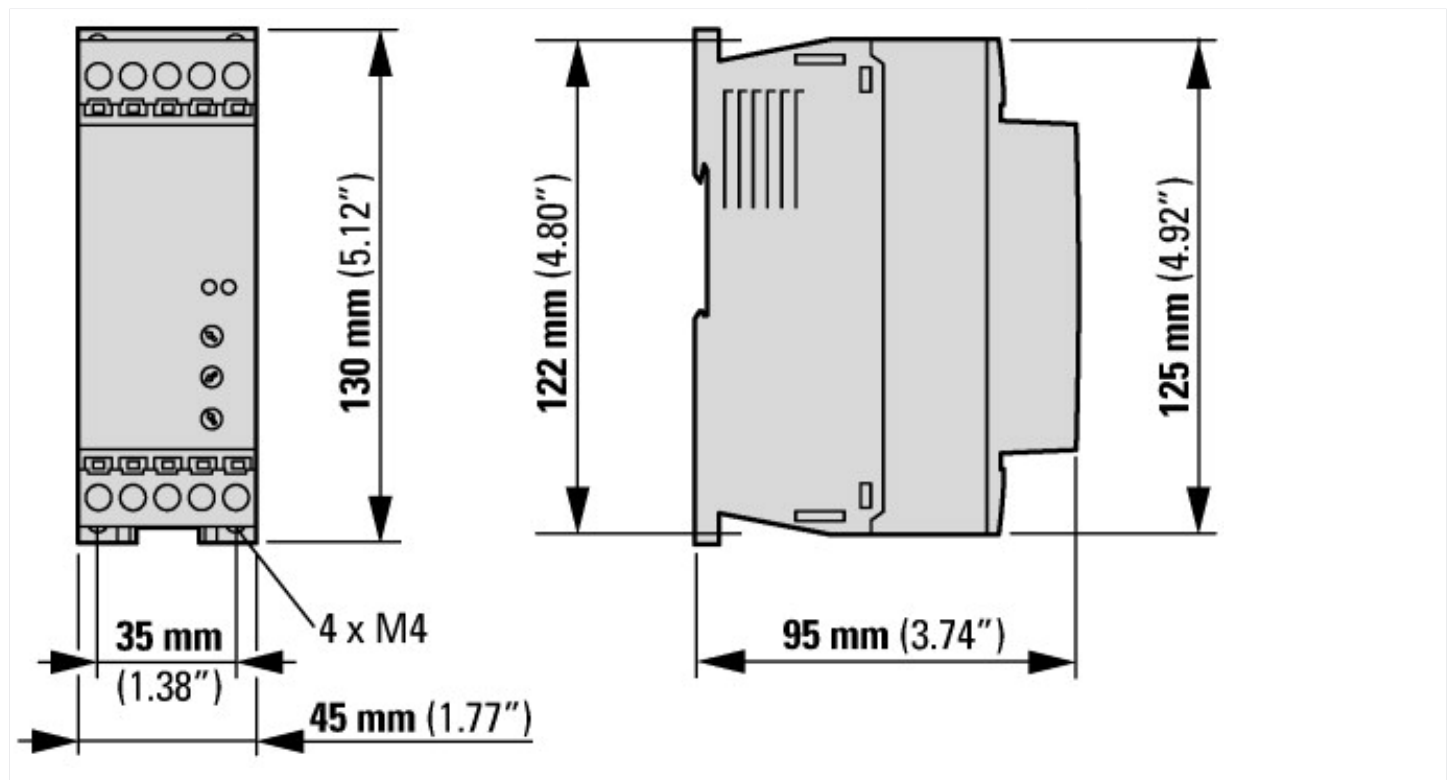
Technical data ETIM 7.0

| | | |
|---|----|------------------|
| 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 (ec1@ss10.0.1-27-37-09-07 [ACO300011]) | | |
| Rated operation current I _e at 40 °C T _u | A | 12 |
| Rated operating voltage U _e | V | 230 - 460 |
| Rated power three-phase motor, inline, at 230 V | kW | 3 |
| Rated power three-phase motor, inline, at 400 V | kW | 5.5 |
| 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 U _s at AC 50HZ | V | 24 - 24 |
| Rated control supply voltage U _s at AC 60HZ | V | 24 - 24 |
| Rated control supply voltage U _s at 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 |

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 |
| UL File No. | | E251034 |
| CSA File No. | | 2511305 |
| CSA Class No. | | 321106 |
| Suitable for | | Branch circuits |
| Max. Voltage Rating | | 480 V |
| Degree of Protection | | IP20; UL/CSA Type 1 |

Dimensions



Additional product information (links)

IL03902003Z Instructions for DS7 Soft Starter

IL03902003Z Instructions for DS7 Soft Starter ftp://ftp.moeller.net/DOCUMENTATION/AWA_INSTRUCTIONS/IL03902003Z2018_05.pdf

MN03901001Z Manual DS7 soft starters

MN03901001Z Handbuch DS7 Sanftstarter - Deutsch 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

MN03901001Z Manuale Softstarter DS7 - italiano ftp://ftp.moeller.net/DOCUMENTATION/AWB_MANUALS/MN03901001Z_IT.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