

Specifications



Eaton 134958

Eaton DS7 Soft starter, 160 A, 200 - 480 V AC, 24 V DC, Frame size: FS4, Communication Interfaces: SmartWire-DT

General specifications

PRODUCT NAME	Eaton DS7 Soft starter
CATALOG NUMBER	134958
MODEL CODE	DS7-34DSX160N0-D
EAN	4015081317738
PRODUCT LENGTH/DEPTH	195 mm
PRODUCT HEIGHT	215 mm
PRODUCT WIDTH	108 mm
PRODUCT WEIGHT	3.7 kg
COMPLIANCES	CE Marked C-Tick Compliant
CERTIFICATIONS	UL Listed EN 60947-4-2 IEC 60947-4-2 CSA Certified CE CSA UL 508 UkrSEPRO CSA-C22.2 No 14-05 UL CSA22.2-14 GB 14048.6 C-Tick IEC/EN 60947-4-2 CSA-C22.2 No 0-M91



Powering Business Worldwide

Ambient conditions, mechanical

MOUNTING POSITION	Vertical
SHOCK RESISTANCE	8 g, 11 ms, Mechanical
VIBRATION RESISTANCE	2M2 to EN 60721-3-2

Control circuit

CURRENT CONSUMPTION	0,6 A/50 ms, Control circuit, Regulator supply at peak performance (close bypass) at 24 V DC 1.6 mA, Control circuit, Digital inputs, External 24 V 50 mA, Control circuit, Regulator supply
DROP-OUT TIME	350 ms, Control circuit, Digital Inputs, DC operated
DROP-OUT VOLTAGE	0 - 3 V, DC operated
PICK-UP TIME	250 ms at DC
PICK-UP VOLTAGE	17.3 - 27 V DC
RATED CONTROL SUPPLY VOLTAGE (US) AT DC - MAX	24 V
RATED CONTROL SUPPLY VOLTAGE (US) AT DC - MIN	24 V

Climatic environmental conditions

ALTITUDE	Above 1000 m with 1 % derating per 100 m Max. 2000 m
AMBIENT OPERATING TEMPERATURE - MAX	40 °C
AMBIENT STORAGE TEMPERATURE - MAX	60 °C
AMBIENT OPERATING TEMPERATURE - MIN	-5 °C
AMBIENT STORAGE TEMPERATURE - MIN	-25 °C
CLIMATIC PROOFING	Damp heat, constant, to IEC 60068-2-3 Damp heat, cyclic, to IEC 60068-2-30

Design verification

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.
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	Meets the product standard's requirements.

BY INTERNAL ELECT. EFFECTS	
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.
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

Features & functions

FAULT MEMORY	8 Faults
FITTED WITH:	Internal bypass Internal bypass contacts
FUNCTIONS	Current limitation, with PKE Potential isolation between power and control sections Single direction Min. ramp time 1 s - fast switching (semiconductor contactor) Suppression of closing transients Suppression of DC components for motors Soft start function
INTERFACES	SmartWire-DT (built-in)

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 %) or via SmartWire-DT
RATED OPERATIONAL CURRENT (IE) AT AC-11	1 A

General information

CLASS	Other
CONNECTION TO SMARTWIRE-DT	Yes
DEGREE OF PROTECTION	IP20 NEMA 1
FRAME SIZE	4 3 FS4
MAINS VOLTAGE - MAX	480 V
MAINS VOLTAGE - MIN	200 V
OVERVOLTAGE CATEGORY	II
POLLUTION DEGREE	2
PRODUCT CATEGORY	SmartWire-DT slave
RADIO INTERFERENCE CLASS	Class B (EN 55011)
SUITABLE FOR	Branch circuits, (UL/CSA)
TYPE	Soft starter for three-phase loads
VOLTAGE TYPE	DC

Main conducting paths

OVERLOAD CYCLE	AC-53a: 3 - 5: 75 - 10
RATED OPERATIONAL CURRENT (IE) AT AC-53	160 A
RATED OPERATIONAL VOLTAGE (UE) - MAX	480 V
RATED OPERATIONAL VOLTAGE (UE) - MIN	230 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

Soft start function

APPLICATION

- 1-phase motors:
No
- 3-phase motors:
Yes
- Soft starting of
three-phase
asynchronous
motors

CURRENT LIMITATION

(0 - 8) x I_e , Soft start
function

DELAY TIME

0 - 30 s, Soft start function,
Ramp times

RAMP/RUN-UP TIME

1 - 30 s

START VOLTAGE

Max. 100 %, Soft start
function, Start voltage =
turn-off voltage
Min. 30 %, Soft start
function, Start voltage =
turn-off voltage

Terminal capacities

SCREWDRIVER SIZE	0.6 x 3.5 mm, Terminal screws, Control circuit cables PZ2, 1 x 6 mm, Terminal screw, Standard screwdriver
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 (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 1 x (0.5 - 2.5) mm ² , Control circuit cables
TERMINAL CAPACITY (SOLID/STRANDED AWG)	2 x (21 - 18), Control circuit cables 1 x (12 - 350 kcmil), Main cables 1 x (21 - 14), Control circuit cables 2 x (12 - 00), Main cables
TERMINAL CAPACITY (STRANDED)	1 x (0.5 - 1.5) 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
TIGHTENING TORQUE	5 Nm ($\leq$ 10 mm ²) 0.4 Nm, Screw terminals, Control circuit cables 14 Nm ($>$ 10 mm ²)

Resources

BROCHURES	eaton-softstarter-s811-ds7-brochure-br039001en-en-us.pdf
CATALOGUES	eaton-drives-soft-starter-catalog-ca04020001zen-us.pdf
DECLARATIONS OF CONFORMITY	eaton-soft-starter-declaration-of-conformity-eu250527en.pdf eaton-soft-starter-declaration-of-conformity-uk251010en.pdf
DRAWINGS	eaton-semiconductor-contactors-swd-ds7-soft-starter-dimensions-002.eps eaton-semiconductor-contactors-softstarter-ds7-3d-drawing-007.eps
ECAD MODEL	DA-CE-ETN.DS7-34DSX160N0-D
INSTALLATION INSTRUCTIONS	IL03902005Z2021_06.pdf
MANUALS AND USER GUIDES	eaton-ds7-soft-starter-mn03901001z-en-us.pdf MN05006002Z_EN
MCAD MODEL	DA-CS-ds7_4_darwin_100316 eaton-soft-starters-mcad-drawings-ds7-4-darwin-100316.dwg
MULTIMEDIA	Soft starter DS7 up to 200 A
SALES NOTES	eaton-rmq-chemical-resistance-flyer-fl047011en-en-us.pdf

PROJECT NAME:
PROJECT NUMBER:
PREPARED BY:
DATE:



Eaton Corporation plc Eaton House
30 Pembroke Road
Dublin 4, Ireland
Eaton.com

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