

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	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, AC operated
DROP-OUT VOLTAGE	AC operated: 0 - 15 V, AC operated
PICK-UP TIME	250 ms at AC
PICK-UP VOLTAGE	108 - 253 V AC
RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 50 HZ - MAX	230 V
RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 50 HZ - MIN	110 V
RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 60 HZ - MAX	230 V
RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 60 HZ - MIN	110 V

Climatic environmental conditions

ALTITUDE	Max. 2000 m Above 1000 m with 1 % derating per 100 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, cyclic, to IEC 60068-2-30 Damp heat, constant, to IEC 60068-2-3

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	0.2 W
HEAT DISSIPATION CAPACITY PDISS	0 W
HEAT DISSIPATION PER POLE, CURRENT-DEPENDENT PVID	0 W
RATED OPERATIONAL CURRENT FOR SPECIFIED HEAT DISSIPATION (IN)	4 A
STATIC HEAT DISSIPATION, NON-CURRENT-DEPENDENT PVS	0.2 W

Features & functions

FITTED WITH:	Internal bypass Internal bypass contacts
FUNCTIONS	Min. ramp time 1 s - fast switching (semiconductor contactor) Potential isolation between power and control sections Single direction Soft start function Suppression of DC components for motors Suppression of closing transients

Input/Output

INPUT CURRENT	4 mA (at 230 V AC, Digital inputs)
NUMBER OF OUTPUTS	1 Relay Output (TOR)
OUTPUT VOLTAGE	110 - 230 V AC
PROTECTION	Finger and back-of-hand proof, Protection against direct contact
RATED CONTROL VOLTAGE (UC)	110 - 230 V AC (-15 %/+10 %) 110 - 230 V AC
RATED OPERATIONAL CURRENT (IE) AT AC-11	1 A

General information

CLASS	Other
CONNECTION TO SMARTWIRE-DT	No
DEGREE OF PROTECTION	NEMA 1 IP20
FRAME SIZE	FS1
MAINS VOLTAGE - MAX	480 V
MAINS VOLTAGE - MIN	200 V
OVERVOLTAGE CATEGORY	II
POLLUTION DEGREE	2
RADIO INTERFERENCE CLASS	Class A (EN 55011)
SUITABLE FOR	Branch circuits, (UL/CSA)
TYPE	Soft starter for three-phase loads
VOLTAGE TYPE	AC

Main conducting paths

OVERLOAD CYCLE	AC-53a: 3 - 5: 75 - 10
RATED OPERATIONAL CURRENT (IE) AT AC-53	4 A
RATED OPERATIONAL VOLTAGE (UE) - MAX	480 V
RATED OPERATIONAL VOLTAGE (UE) - MIN	230 V
SHORT-CIRCUIT PROTECTION RATING	PKM0-4 (+ CL-PKZ0), Type "1" coordination, Main conducting paths 3 x 170M1359, 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 0.75 HP

ASSIGNED MOTOR

POWER AT 220/230 V, 60 HZ, 3-PHASE 1 HP

ASSIGNED MOTOR

POWER AT 460/480 V, 60 HZ, 3-PHASE 2 HP

RATED OPERATIONAL

POWER AT 220/230 V, 50 HZ 0.75 kW

RATED OPERATIONAL

POWER AT 400 V, 50 HZ 1.5 kW

Terminal capacities

SCREWDRIVER SIZE PZ2, 1 x 6 mm, Terminal screw, Standard screwdriver
0.6 x 5.5 mm/1 x 6 mm, Terminal screws, Control circuit cables

TERMINAL CAPACITY (FLEXIBLE WITH FERRULE) 2 x (0.75 - 2.5) mm², Control circuit cables
2 x (0.75 - 2.5) mm², Main cables
1 x (0.75 - 2.5) mm², Main cables
1 x (0.75 - 2.5) mm², Control circuit cables

TERMINAL CAPACITY (SOLID) 2 x (0.75 - 2.5) mm², Control circuit cables
2 x (0.75 - 2.5) mm², Main cables
1 x (0.75 - 4) mm², Control circuit cables
1 x (0.75 - 4) mm², Main cables

TERMINAL CAPACITY (SOLID/STRANDED AWG) 18 - 10, Control circuit cables
18 - 10, Main cables

TIGHTENING TORQUE 1.2 Nm
1.2 Nm, Screw terminals, Control circuit cables

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

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-003.eps](#)
[eaton-semiconductor-contactors-softstarter-ds7-3d-drawing.eps](#)

ECAD MODEL [DA-CE-ETN.DS7-342SX004N0-N](#)

INSTALLATION INSTRUCTIONS [IL03902003Z2021_06.pdf](#)

INSTALLATION VIDEOS [Soft starter DS7 up to 32 A](#)

MANUALS AND USER GUIDES [eaton-ds7-soft-starter-mn03901001z-en-us.pdf](#)

MCAD MODEL [eaton-soft-starters-mcad-drawings-ds7-1-100202.dwg](#)

PROJECT NAME:

PROJECT NUMBER:

PREPARED BY:

DATE:



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