

Specifications



Eaton 125389

Eaton SPX Variable frequency drive, 600 V AC, 3-phase, 160 kW, IP21, Radio interference suppression filter, OLED display, FR9

General specifications

PRODUCT NAME	Eaton SPX variable frequency drive
CATALOG NUMBER	125389
MODEL CODE	SPX175A1-5A4N1
EAN	4015081229956
PRODUCT LENGTH/DEPTH	362 mm
PRODUCT HEIGHT	1150 mm
PRODUCT WIDTH	480 mm
PRODUCT WEIGHT	146 kg

CERTIFICATIONS

UL
RCM
IEC/EN61800-3
UL 508C
DNV
UL File No.: E134360
IEC/EN 61800-3
Specification for general requirements: IEC/EN 61800-2
CSA-C22.2 No. 14
Certified by UL for use in Canada
CUL
RoHS, ISO 9001
UL report applies to both US and Canada
Safety: EN 61800-5-1: 2003

UL Category Control No.: NMMS, NMMS2, NMMS7, NMMS8
IEC/EN61800-5
CE
CSA Class No.: 3211-06



Powering Business Worldwide

Climatic environmental conditions

ALTITUDE	Max. 3000 m Above 1000 m with 1 % performance reduction per 100 m Max. 1000 m
AMBIENT OPERATING TEMPERATURE - MAX	50 °C
AMBIENT STORAGE TEMPERATURE - MAX	70 °C
AMBIENT OPERATING TEMPERATURE - MIN	-10 °C
AMBIENT OPERATING TEMPERATURE AT 150% OVERLOAD - MAX	50 °C
AMBIENT OPERATING TEMPERATURE AT 150% OVERLOAD - MIN	-10 °C
AMBIENT STORAGE TEMPERATURE - MIN	-40 °C
CLIMATIC PROOFING	< 95 % relative humidity, no condensation, no corrosion, no dripping water

Control circuit

NUMBER OF INPUTS (ANALOG)	2 (parameterizable, 0 - 10 V DC, 0/4 - 20 mA)
NUMBER OF INPUTS (DIGITAL)	6 (parameterizable, max. 30 V DC)
NUMBER OF OUTPUTS (ANALOG)	1
NUMBER OF OUTPUTS (DIGITAL)	1 (parameterizable, 48 V DC/50 mA)
NUMBER OF RELAY OUTPUTS	2 (parameterizable, N/O, 8 A (24 V DC) / 8 A (250 V AC) / 0,4 A (125 V DC))
RATED CONTROL VOLTAGE (UC)	24 V DC (external, max. 250 mA)

Communication

COMMUNICATION INTERFACE	BACnet/IP, optional Modbus-TCP, optional CANopen®, optional PROFIBUS-DP DeviceNet, optional LonWorks, optional BACnet MS/TP, optional EtherCAT, optional Ethernet IP, optional Modbus-RTU, optional PROFINET, optional
CONNECTION TO SMARTWIRE-DT	No

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	Meets the product standard's requirements.

ENCLOSURES	
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.
10.6 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	4000 W
HEAT DISSIPATION CAPACITY PDISS	0 W
HEAT DISSIPATION DETAILS	Operation (with 150 % overload)
HEAT DISSIPATION PER POLE, CURRENT-DEPENDENT PVID	0 W

General information	
DEGREE OF PROTECTION	IP21 NEMA Other
ELECTROMAGNETIC COMPATIBILITY	1st and 2nd environments (according to EN 61800-3)
FITTED WITH:	DC link choke Radio interference suppression filter Internal DC link OLED display IGBT inverter
FRAME SIZE	FR9
MOUNTING POSITION	Vertical
PRODUCT CATEGORY	Variable frequency drives
PROTECTION	Finger and back-of-hand proof, Protection against direct contact (BGV A3, VBG4)
RADIO INTERFERENCE CLASS	C2, C3: depending on the motor cable length, the connected load, and ambient conditions. External radio interference suppression filters (optional) may be necessary.
SUITABLE FOR	Branch circuits, (UL/CSA)

RATED OPERATIONAL CURRENT FOR SPECIFIED HEAT DISSIPATION (IN)	170 A
STATIC HEAT DISSIPATION, NON-CURRENT-DEPENDENT PVS	0 W

Main circuit	
MAINS VOLTAGE - MAX	690 V
MAINS VOLTAGE - MIN	525 V
OPERATING MODE	U/f control Sensorless vector control (SLV) Optional: Vector control with feedback (CLV)
OUTPUT FREQUENCY - MAX	320 Hz
OUTPUT FREQUENCY - MIN	0 Hz
OUTPUT VOLTAGE (U2)	690 V AC, 3-phase 600 V AC, 3-phase
RATED CONTROL SUPPLY VOLTAGE	10 V DC (Us, max. 10 mA)
RATED FREQUENCY - MAX	66 Hz
RATED FREQUENCY - MIN	45 Hz
RATED OPERATIONAL CURRENT (IE) AT 110% OVERLOAD	208 A
RATED OPERATIONAL CURRENT (IE) AT 150% OVERLOAD	170 A
RATED OPERATIONAL POWER AT 690 V, 50 HZ	160 kW
RATED OPERATIONAL POWER AT 690 V, 50 HZ, 110% OVERLOAD	200 kW
RATED OPERATIONAL VOLTAGE	600 V AC, 3-phase 690 V AC, 3-phase
RESOLUTION	0.01 Hz (Frequency resolution, setpoint value)
SUPPLY FREQUENCY	50/60 Hz
SWITCHING FREQUENCY	1.5 kHz, 1 - 6 kHz adjustable, fPWM, Power section, Main circuit
SYSTEM CONFIGURATION TYPE	AC supply systems with earthed center point
VOLTAGE RATING - MAX	690 VAC

Motor rating

**ASSIGNED MOTOR
CURRENT IM AT 690 V, 50
HZ, 110% OVERLOAD**

202 A

**ASSIGNED MOTOR
CURRENT IM AT 690 V, 50
HZ, 150% OVERLOAD**

162 A

**ASSIGNED MOTOR
CURRENT IM AT 690 V, 60
HZ, 110% OVERLOAD**

167 A

**ASSIGNED MOTOR
CURRENT IM AT 690 V, 60
HZ, 150% OVERLOAD**

167 A

**ASSIGNED MOTOR
POWER AT 690 V, 60 HZ**

200 HP

**ASSIGNED MOTOR
POWER AT 690 V, 60 HZ,
110% OVERLOAD**

200 HP

Resources

APPLICATION NOTES

[eaton-9000x-spi-common-dc-bus-selection-ap040044-en-us.pdf](#)

[Electromagnetic compatibility \(EMC\)](#)

CATALOGUES

[eaton-drives-soft-starter-catalog-ca04020001zen-us.pdf](#)

DECLARATIONS OF CONFORMITY

[eaton-variable-frequency-drive-declaration-of-conformity-eu260003en.pdf](#)

DRAWINGS

[eaton-frequency-inverter-dimensions-008.eps](#)

INSTALLATION INSTRUCTIONS

[IL04020008Z](#)

MULTIMEDIA

[Eaton variable frequency drives - Demand more than good enough](#)

[How does a VFD work to save energy and money?](#)

[Eaton variable frequency drives - Demand more innovation](#)

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PRODUCT NOTIFICATIONS

[eaton-drives-ecodesign-directive-mz040046en-en.pdf](#)

PROJECT NAME:

PROJECT NUMBER:

PREPARED BY:

DATE:



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