



125379  
SPX125A2-5A4N1

Overview

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per IEC/EN 61439

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## DELIVERY PROGRAM

Product range  
Variable frequency drives

Part group reference (e.g. DIL)  
SPX

Rated operational voltage [ $U_e$ ]  
600 V AC, 3-phase  
690 V AC, 3-phase

Output voltage with  $V_e$  [ $U_2$ ]  
600 V AC, 3-phase  
690 V AC, 3-phase

Mains voltage (50/60Hz) [ $U_N$ ]  
525 (-15%) - 690 ( $\pm 10\%$ ) V

### Rated operational current [ $I_e$ ]

At 150% overload [ $I_e$ ]  
125 A

At 110% overload [ $I_L$ ]  
144 A

### Assigned motor rating

Note  
For AC motors with internal and external  
ventilation with 50 Hz / 60 Hz

Note  
Overload cycle for 60 s every 600 s

Note  
at 690 V, 50 Hz

150 % Overload [P]  
110 kW

110 % Overload [P]  
132 kW

150 % Overload [ $I_M$ ]  
114 A

110 % Overload [ $I_M$ ]  
134 A

Note  
at 690 V, 60 Hz

150 % Overload [P]  
125 HP

110 % Overload [P]  
150 HP

150 % Overload [ $I_M$ ]  
109 A

110 % Overload [ $I_M$ ]  
125 A

Degree of Protection  
IP54

Fieldbus connection (optional)  
PROFIBUS-DP  
PROFINET  
EtherCAT  
EtherNet/IP  
LonWorks  
CANopen®  
DeviceNet  
Modbus-TCP  
Modbus-RTU  
BAOnet MS/TP

Fitted with  
Radio interference suppression filter  
OLED display

Frame size  
FR9

Connection to SmartWire-DT  
no

## TECHNICAL DATA

### General

Standards  
Specification for general requirements: IEC/EN  
61800-2  
EMC requirements: IEC/EN 61800-3  
Safety requirements: IEC/EN 61800-5-1

Certifications  
CE, UL, cUL, RCM

Approvals  
DNV

Production quality  
RoHS, ISO 9001

Climatic proofing [ $\rho_w$ ]  
< 95% relative humidity, no condensation, no  
corrosion, no dripping water %

Ambient temperature  
Operating ambient temperature min.  
-10 °C

Ambient temperature  
Operating ambient temperature max.  
+50 °C

Ambient temperature  
operation (110 % overload) [9]  
-10 - +40 °C

Ambient temperature  
Storage [9]  
-40 - +70 °C

Radio interference level  
Radio interference class (EMC)  
C2, C3, depending on the motor cable length, the  
connected load, and ambient conditions. External  
radio interference suppression filters (optional)  
may be necessary.

Radio interference level  
Environment (EMC)  
1st and 2nd environments as per EN 61800-3

Mounting position  
Vertical

Altitude  
0 - 1000 m above sea level  
above 1000 m with 1 % performance reduction  
per 100 m  
max. 3000 mm

Degree of Protection  
IP54

Protection against direct contact  
BGV A3 (VBG4, finger- and back-of-hand proof)

## Main circuit

Supply  
Rated operational voltage [ $U_e$ ]  
600 V AC, 3-phase  
690 V AC, 3-phase

Supply  
Mains voltage (50/60Hz) [ $U_{LN}$ ]  
525 (-15%) - 690 ( $\pm 10\%$ ) V

Supply  
System configuration  
AC supply systems with earthed center point

Supply  
Supply frequency [ $f_{LN}$ ]  
50/60 Hz

Supply  
Frequency range [ $f_{LN}$ ]  
45–66 ( $\pm 0\%$ ) Hz

Power section  
Function  
Variable frequency drive with internal DC link and IGBT inverter

Power section  
Output voltage with  $V_e$  [ $U_2$ ]  
600 V AC, 3-phase  
690 V AC, 3-phase

Power section  
Output Frequency [ $f_2$ ]  
0 - 50/60 (max. 320) Hz

Power section  
Switching frequency [ $f_{PWM}$ ]  
1.5  
adjustable 1 - 6 kHz

Power section  
Operation Mode  
U/f control  
sensorless vector control (SLV)  
optional: Vector control with feedback (CLV)

Power section  
Frequency resolution (setpoint value) [ $\Delta f$ ]

0.01 Hz

Power section  
Rated operational current  
At 150% overload [ $I_e$ ]  
125 A

Power section  
Rated operational current  
At 110% overload [ $I_e$ ]  
144 A

Power section  
Fitted with  
Radio interference suppression filter  
OLED display

Power section  
Frame size  
FR9

Mbtor feeder  
Note  
For AC motors with internal and external  
ventilation with 50 Hz / 60 Hz

Mbtor feeder  
Note  
Overload cycle for 60 s every 600 s

Mbtor feeder  
Note  
at 690 V, 50 Hz

Mbtor feeder  
150 % Overload [P]  
110 kW

Mbtor feeder  
110 % Overload [P]  
132 kW

Mbtor feeder  
Note  
at 690 V, 60 Hz

Mbtor feeder  
150 % Overload [P]  
125 HP

Motor feeder  
110 % Overload [P]  
150 HP

### Control section

External control voltage [ $U_c$ ]  
24 V DC (max. 250 mA) V

Reference voltage [ $U_s$ ]  
10 V DC (max. 10 mA) V

Analog inputs  
2, parameterizable, 0 - 10 V DC, 0/4 - 20 mA

Analog outputs  
1, parameterizable, 0/4 - 20 mA

Digital inputs  
6, parameterizable, max. 30 V DC

Digital outputs  
1, parameterizable, 48 V DC/50 mA

Relay outputs  
2, parameterizable, N/O, 8 A (24 V DC) / 8 A (250 V AC) / 0,4 A (125 V DC)

### Assigned switching and protective elements

Power Wiring  
Main choke  
150 % overload ( $CT/I_H$ , at 50 °C)  
DX-LNB-160

Motor feeder  
motor choke  
150 % overload ( $CT/I_H$ , at 50 °C)  
DX-LMB-150

Motor feeder  
motor choke  
110 % overload ( $VT/I_L$ , at 40 °C)  
DX-LMB-150

Motor feeder  
Sine filter  
150 % overload (CT/I<sub>H</sub>, at 50 °C)  
SIN-0185-6-0-P

Motor feeder  
Sine filter  
110 % overload (VT/I<sub>L</sub>, at 40 °C)  
SIN-0185-6-0-P

## DESIGN VERIFICATION AS PER IEC/EN 61439

### Technical data for design verification

Rated operational current for specified heat  
dissipation [I<sub>r</sub>]  
125 A

Heat dissipation per pole, current-dependent [P<sub>vid</sub>]  
0 W

Equipment heat dissipation, current-dependent  
[P<sub>vid</sub>]  
2750 W

Static heat dissipation, non-current-dependent [P<sub>vs</sub>]  
0 W

Heat dissipation capacity [P<sub>diss</sub>]  
0 W

Operating ambient temperature min.  
-10 °C

Operating ambient temperature max.  
+50 °C

Operation (with 150 % overload)

### 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 Strength of materials and parts  
10.2.3.1 Verification of thermal stability of enclosures  
Meets the product standard's requirements.

10.2 Strength of materials and parts  
10.2.3.2 Verification of resistance of insulating materials to normal heat  
Meets the product standard's requirements.

10.2 Strength of materials and parts  
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 Strength of materials and parts  
10.2.4 Resistance to ultra-violet (UV) radiation  
Meets the product standard's requirements.

10.2 Strength of materials and parts  
10.2.5 Lifting  
Does not apply, since the entire switchgear needs to be evaluated.

10.2 Strength of materials and parts  
10.2.6 Mechanical impact  
Does not apply, since the entire switchgear needs to be evaluated.

10.2 Strength of materials and parts  
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 Insulation properties  
10.9.3 Impulse withstand voltage  
Is the panel builder's responsibility.

10.9 Insulation properties  
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.

## APPROVALS

Product Standards  
UL 508C; CSA-C22.2 No. 14; IEC/EN61800-3;  
IEC/EN61800-5; CE marking

UL File No.  
E134360

UL Category Control No.  
NMVS, NMVS2, NMVS7, NMVS8

CSA File No.  
UL report applies to both US and Canada

CSA Class No.  
3211-06

North America Certification  
UL listed, certified by UL for use in Canada

Specially designed for North America  
No

Suitable for  
Branch circuits

Max. Voltage Rating  
3~ 690 V AC IEC; TN-S UL/CSA: "Y" (Solidly  
Grounded Wye)

Degree of Protection  
IEC: IP54

## DIMENSIONS



