#### **DATASHEET - SPX200A0-5A2N1**



Variable frequency drive, 600 V AC, 3-phase, 200 kW, IP00, OLED display, FR10  $\,$ 



Part no. SPX200A0-5A2N1 Catalog No. 129600

Alternate Catalog SPX200A0-5A2N1

No.

### **Delivery program**

Delivery program			
Product range			Variable frequency drives
Part group reference (e.g. DIL)			SPX
Rated operational voltage	U <sub>e</sub>		600 V AC, 3-phase 690 V AC, 3-phase
Output voltage with $V_{\rm e}$	U <sub>2</sub>		600 V AC, 3-phase 690 V AC, 3-phase
Mains voltage (50/60Hz)	$U_{LN}$	V	525 (-15%) - 690 (±10%)
Rated operational current			
At 150% overload	l <sub>e</sub>	Α	208
At 110% overload	I <sub>e</sub>	Α	261
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	kW	200
110 % Overload	P	kW	250
150 % Overload	I <sub>M</sub>	Α	202
110 % Overload	I <sub>M</sub>	Α	253
Note			at 690 V, 60 Hz
150 % Overload	P	HP	200
110 % Overload	P	HP	300
150 % Overload	I <sub>M</sub>	Α	167
110 % Overload	I <sub>M</sub>	Α	251
Degree of Protection			IP00
Fieldbus connection (optional)			PROFIBUS-DP PROFINET EtherCAT EtherNet/IP LonWorks CANopen® DeviceNet Modbus-TCP Modbus-RTU BACnet MS/TP
Fitted with			OLED display
Frame size			FR10
Connection to SmartWire-DT			no

#### **Technical data**

#### General

delleral			
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	$\rho_{\text{W}}$	%	< 95% relative humidity, no condensation, no corrosion, no dripping water
Ambient temperature			
Operating ambient temperature min.		°C	-10
Operating ambient temperature max.		°C	+ 40

Storage	9	°C	-40 - +70
Radio interference level	, and the second	J	
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.
Environment (EMC)			1st and 2nd environments as per EN 61800-3
Mounting position			Vertical
Altitude		m	0 - 1000 m above sea level above 1000 m with 1 % performance reduction per 100 m max. 3000 m
Degree of Protection			IP00
Protection against direct contact  Main circuit			BGV A3 (VBG4, finger- and back-of-hand proof)
Supply			
Rated operational voltage	U <sub>e</sub>		600 V AC, 3-phase 690 V AC, 3-phase
Mains voltage (50/60Hz)	$U_LN$	V	525 (-15%) - 690 (±10%)
System configuration			AC supply systems with earthed center point
Supply frequency	$f_{LN}$	Hz	50/60
Frequency range	f <sub>LN</sub>	Hz	45–66 (± 0%)
Power section			
Function			Variable frequency drive with internal DC link and IGBT inverter
Output voltage with V <sub>e</sub>	U <sub>2</sub>		600 V AC, 3-phase 690 V AC, 3-phase
Output Frequency	f <sub>2</sub>	Hz	0 - 50/60 (max. 320)
Switching frequency	f <sub>PWM</sub>	kHz	1.5 adjustable 1 - 6
Operation Mode			U/f control sensorless vector control (SLV) optional: Vector control with feedback (CLV)
Frequency resolution (setpoint value)	$\Delta f$	Hz	0.01
Rated operational current			
At 150% overload	I <sub>e</sub>	Α	208
At 110% overload	Ie	Α	261
Fitted with			OLED display
Frame size			FR10
Motor feeder			
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	kW	200
110 % Overload	Р	kW	250
Note 150 % Overload	Р	НР	at 690 V, 60 Hz
110 % Overload	P		200
Control section	r	HP	300
External control voltage	U <sub>c</sub>	V	24 V DC (max. 250 mA)
Reference voltage	$U_s$	V	10 V DC (max. 10 mA)
Analog inputs	3		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 <sub>H</sub> , at 50 °C)			DX-LN3-300
Motor feeder			
motor choke			

150 % overload (CT/I <sub>H</sub> , at 50 °C)	DX-LM3-220
110 % overload (VT/I $_{L}$ , at 40 °C)	DX-LM3-303
Sine filter	
150 % overload (CT/I <sub>H</sub> , at 50 °C)	SIN-0287-6-0-P
110 % overload (VT/I $_{\rm L}$ , at 40 °C)	SIN-0287-6-0-P

# Design verification as per IEC/EN 61439

Rated operational current for specified heat dissipation  In A 208  Heat dissipation per pole, current-dependent  Pvid W 0  Equipment heat dissipation, current-dependent  Pvid W 5000  Static heat dissipation, non-current-dependent  Pvs W 0  Heat dissipation capacity  Pdiss W 0  Operating ambient temperature min.  °C -10  Operating ambient temperature max.				
Heat dissipation per pole, current-dependent Prid W 5000  Static heat dissipation, current-dependent Prid W 5000  Static heat dissipation, current-dependent Prid W 5000  Heat dissipation capachy Prid W 5000  Heat dissipation capachy Prid W 5000  Heat dissipation capachy Prid W 5000  Deparating ambient temperature min.  Operating ambient temperature min	Technical data for design verification			
Equipment heat dissipation, corrent-dependent Pro W 5000  Status heat dissipation, non-current dependent Pro W 5000  Derating ambient temperature min.  Operating ambient temperature min.  Operating ambient temperature max.  10.2 Swrength of materials and parts  10.2.2 Swrength of materials and parts  10.2.2 Corosion resistance  10.2.3 Verification of thermal stability of enclosures  10.2.3 Verification of the sistance of insulating materials to abnormal heat and fire due to internal electric effects  10.2.3 Verification of resistance of insulating materials to abnormal heat and fire due to internal electric effects  10.2.4 Resistance to ultra-violet (UV) radiation  10.2 Show the product standard's requirements.  Meets the product standard's requirements.  Does not apply, since the entire swritchgear needs to be evaluated.  Does not apply, since the entire swritchgear needs to be evaluated.  Meets the product standard's requirements.  Does not apply, since the entire swritchgear needs to be evaluated.  Meets the product standard's requirements.  Does not apply, since the entire swritchgear needs to be evaluated.  Meets the product standard's requirements.  Does not apply, since the entire swritchgear needs to be evaluated.  Does not apply, since the entire swritchgear needs to be evaluated.  In 10.5 Incorporation of swritching devices and components  10.2 Instance and creapuse of extractions and connections  10.3 Instance and creapuse of extractions and connections  10.4 Testing of enclosures made of insulating material  10.5 Temperature rise  10.6 Temperature rise  10.7 Temperature rise  10.8 Temperature rise  10.9 Temperature rise  10.9 Temperature rise  10.1 Temperature rise  10.1 Temperature rise  10.2 Temperature rise colculation. Eaton will provide the active for the devices.  10.1 Short-ci	Rated operational current for specified heat dissipation	In	Α	208
Static heat dissipation, non-current-dependent  Heat dissipation capacity  Palss  W  0  Operating ambient temperature min.  Operating ambient temperature min.  Operating ambient temperature min.  Operating ambient temperature min.  OPERATING abesign verification  10.2 Strength of materials and parts  10.2.3 Verification of thormal stability of enclosures  10.2.3 Verification of resistance of insulating materials to normal heat and fire due to internal electric effects  10.2.4 Resistance to ultra-violet (UV) radiation  10.2.5 Mechanical impact  10.2.6 Mechanical impact  10.2.7 Inscriptions  10.3 Degree of protection of ASSEMBLIES  10.3 Degree of protection against electric shock  10.4 Clearances and croepseg distances  10.5 Protection against electric shock  10.6 Incorporation of switching devices and components  10.7 Inscriptions  10.8 Incorporation of switching devices and components  10.9 Inscriptions  10.9 Inscriptions  10.9 Inscriptions  10.1 Short-circuits and connections  10.1 Short-circuits and connections  10.2 Inscriptions  10.3 Insulation properties  10.3 Insulation properties  10.3 Insulation properties  10.3 Insulation properties  10.4 The material enductors  10.5 Inscriptions  10.6 Incorporation of switching devices and components  10.7 Inscription of exitening devices and components  10.8 Insulation properties  10.9 Insulation properties  10.1 Insulation properties  10.1 Insulation properties  10.2 Insulation properties  10.3 Insulation properties  10.4 Clearances and every electric strength  10.5 Insulation properties  10.6 Incorporation of switching devices and components  10.7 Instrantal electrical circuits and connections  10.8 Insulation properties  10.9 Insulation properties  10.1 Insulation properties  10.1 Insulation properties  10.2 Insulation properties  10.3 Insulation properties  10.4 Clearances and every properties  10.5 Insulation properties  10.6 Very Properties  10.7 In	Heat dissipation per pole, current-dependent	P <sub>vid</sub>	W	0
Heat dissipation capacity  Operating ambient temperature min.  Oporating ambient temperature max.  ***C*** - 10  **C*** - 10  **Meets the product standard's requirements.  **Does not apply, since the entire switchgar needs to be evaluated.  **Meets the product standard's requirements.  **Does not apply, since the entire switchgar needs to be evaluated.  **Meets the product standard's requirements.  **Does not apply, since the entire switchgar needs to be evaluated.  **Does not apply, since the entire switchgar needs to be evaluated.  **Does not apply, since the entire switchgar needs to be evaluated.  **Does not apply, since the entire switchgar needs to be evaluated.  **Does not apply, since the entire switchgar needs to be evaluated.  **Does not apply, since the entire switchgar needs to be evaluated.  **Does not apply, since the entire switchgar needs to be evaluated.  **Does not apply, since the entire switchgar needs to be evalua	Equipment heat dissipation, current-dependent	P <sub>vid</sub>	W	5000
Operating ambient temperature min. Operating ambient temperature max.  **C*** 40  **C*** 40  **ECEVEN 61438 design verification  10.2 Strength of materials and parts  10.2.2 Corrosion resistance  10.2.3.1 Verification of resistance of insulating materials to normal heat and fire due to internal electric effects  10.2.3.2 Verification of resistance of insulating materials to abnormal heat and fire due to internal electric effects  10.2.4.3 Sterification of resistance of insulating materials to abnormal heat and fire due to internal electric effects  10.2.5.1 Union of the materials and parts  10.2.5.1 Union of the materials and parts  10.2.6 Mechanical impact  10.2.6 Mechanical impact  10.2.7 Inscriptions  10.2.6 Mechanical impact  10.2.7 Inscriptions  10.3 Degree of protection of ASSEMBLIES  10.4 Clearances and creepage distances  10.5 Protection against electric shock  10.6 Incorporation of existic discriptions  10.7 Internal electrical circuits and components  10.8 Connections for external conductors  10.9 Power-frequency electric strength  10.9 Power-frequency electric strength  10.9 Power-frequency electric strength  10.9 A Testing of enclosures made of insulating material  10.10 Tamperature rise  10.11 Short-circuit rating  10.12 Electromagnetic compatibility  10.13 Mechanical function  10.14 Mechanical function  10.15 Mechanical function  10.16 Mechanical function  10.17 Mechanical function  10.18 Connections for external conductors  10.19 Temperature rise  10.10 Temperature rise  10.10 Temperature rise and of insulating material  10.10 Temperature rise  10.11 Short-circuit rating  10.12 Electromagnetic compatibility  10.13 Mechanical function  10.14 Mechanical function  10.15 Mechanical function  10.16 Mechanical function  10.17 Mechanical function  10.18 Mechanical function  10.18 Mechanical function  10.19 Temperature rise and confidence of maximum temperature rise calculation the instruction observed.  10.19 Temperature rise and builder's responsibility.  10.19 Temperature rise and builder's responsibi	Static heat dissipation, non-current-dependent	P <sub>vs</sub>	W	0
Deprating ambient temperature max.   **C	Heat dissipation capacity	P <sub>diss</sub>	W	0
IECEN 61439 design verification  10.2 Strength of materials and parts  10.2.2 Corrosion resistance  10.2.3.1 Verification of thermal stability of enclosures  10.2.3.2 Verification of resistance of insulating materials to normal heat 10.2.3.3 Verification of resistance of insulating materials to abnormal heat 10.2.3.3 Verification of resistance of insulating materials to abnormal heat 10.2.3.4 Verification of resistance of insulating materials to abnormal heat 10.2.4 Resistance to ultra-violet (UV) radiation  10.2.5 Litting  10.2.6 Mechanical impact 10.2.6 Mechanical impact 10.2.7 Inscriptions  10.3. Degree of protection of ASSEMBLIES 10.3 Degree of protection of ASSEMBLIES 10.4 Glearances and creepage distances 10.5 Protection against electric shock 10.5 Incorporation of switching devices and components 10.5 Incorporation of switching devices and components 10.5 Incorporation of switching devices and components 10.9 Insulation properties 10.9 Power-frequency electric strength 10.9 Insulation properties 10.9 Insulation properties 10.9 Insulation properties 10.9 Insulation group of enclosures made of insulating material 10.10 Temperature rise 10.10 Temperature rise 10.11 Short-circuit rating 10.10 Temperature rise 10.12 Electromagnetic compatibility 10.13 Mechanical function 10.15 Internal circuits rating 10.16 Incorporation of enclosures made of insulating material 10.17 Internal circuits rating 10.18 Temperature rise 10.19 Insulation properties 10.19 Insulation properties 10.10 Temperature rise 10.10 Temperature rise 10.10 Temperature rise 10.11 Short-circuit rating 10.12 Electromagnetic compatibility 10.13 Mechanical function 10.15 He panel builder's responsibility. The specifications for the switchgear must be observed. 10.11 Short-circuit rating 10.11 Short-circuit rating 10.12 Electromagnetic compatibility 11.13 Mechanical function 11.15 He panel builder's responsibility. The specifications for the switchgear must be observed.	Operating ambient temperature min.		°C	-10
10.2 Strength of materials and parts 10.2 Corrosion resistance 10.2.3 I Verification of thermal stability of enclosures Meets the product standard's requirements. 10.2.3 Verification of resistance of insulating materials to normal heat and fire due to internal electric 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. Does not apply, since the entire switchgear needs to be evaluated. Meets the product standard's requirements.  10.2 Inscriptions Does not apply, since the entire switchgear needs to be evaluated. Meets the product standard's requirements.  10.4 Clearances and creepage distances Meets the product standard's requirements.  Does not apply, since the entire switchgear needs to be evaluated. Meets the product standard's requirements.  Does not apply, since the entire switchgear needs to be evaluated.  Meets the product standard's requirements.  Does not apply, since the entire switchgear needs to be evaluated.  Meets the product standard's requirements.  Does not apply, since the entire switchgear needs to be evaluated.  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 Is panel builder's responsibility.  10.9 Insulation properties  10.9 2 Power-frequency electric strength Is the panel builder's responsibility.  10.9 1 Testing of enclosures made of insulating material Is the panel builder's responsibility.  10.11 Short-circuit rating Life the panel builder's responsibility.  10.12 Electromagnetic compatibility Is the panel builder's	Operating ambient temperature max.		°C	40
10.2.2 Corrosion resistance 10.2.3.1 Verification of thermal stability of enclosures 10.2.3.2 Verification of resistance of insulating materials to normal heat 10.2.3.2 Verification of resistance of insulating materials to abnormal heat and fire due to internal electric effects 10.2.4 Resistance to ultra-violet (UV) radiation 10.2.5 Lifting 10.2.6 Meets the product standard's requirements. 10.2.5 Lifting 10.2.6 Meets the product standard's requirements. 10.2.7 Inscriptions 10.2.8 Meets in product standard's requirements. 10.3.0 Supereo of protection of ASSEMBLIES 10.3 Degree of protection of ASSEMBLIES 10.4 Clearances and creepage distances 10.5 Protection against electric shock 10.6 Incorporation of switching devices and components 10.5 Incorporation of switching devices and components 10.6 Incorporation of switching devices and components 10.7 Internal electrical circuits and connections 10.8 Connections for external conductors 10.9 Insulation properties 10.9.2 Power-frequency electric strength 10.9.3 Impulse withstand voltage 10.9.1 Testing of enclosures made of insulating material 10.10 Temperature rise 10.10 Temperature rise 10.11 Short-circuit rating 10.10 Temperature rise 10.11 Short-circuit rating 10.12 Electromagnetic compatibility 10.13 Mechanical function 10.13 Mechanical function 10.13 Mechanical function 10.14 Meets the product standard's requirements. 10.15 Meets the product standard's requirements. 10.16 Meets the product standard's requirements. 10.17 Meets the product standard's requirements. 10.18 Meets the product standard's requirements. 10.19 Temperature rise and components 10.10 Temperature rise under several conductors 10.11 Short-circuit rating 10.12 Electromagnetic compatibility 10.13 Meets the product standard's requirements. 10.14 Meets the product standard's requirements. 10.15 Meets the product standard's requirements. 10.16 Meets the product standard's requirements. 10.17 Meets the product standard's requirements. 10.18 Meets the product standard's requirements. 10.19 Meets the pro	IEC/EN 61439 design verification			
10.2.3.1 Verification of thermal stability of enclosures 10.2.3.2 Verification of resistance of insulating materials to normal heat 10.2.3.3 Verification of resistance of insulating materials to abnormal heat and fire due to internal electric effects 10.2.4 Resistance to ultra-violet (UV) radiation 10.2.5 Lifting 10.2.6 Mechanical impact 10.2.6 Mechanical impact 10.2.7 Inscriptions 10.3 Degree of protection of ASSEMBLIES 10.4 Clearances and creepage distances 10.5 Protection against electric shock 10.6 Incorporation of switching devices and components 10.7 Internal electrical circuits and connections 10.7 Internal electrical circuits and connections 10.9 Insulation properties 10.9 Insulation properties 10.9 Insulation properties 10.9.1 Temperature rise 10.9 Temperature rise 10.9 Insulation properties 10.9 Insulation pro	10.2 Strength of materials and parts			
10.2.3.2 Verification of resistance of insulating materials to normal heat 10.2.3.3 Verification of resistance of insulating materials to abnormal heat and fire due to internal electric effects  10.2.4 Resistance to ultra-violet (UV) radiation  10.2.5 Lifting  10.2.6 Mechanical impact  10.2.6 Mechanical impact  10.3.0 Begree of protection of ASSEMBLIES  10.4 Clearances and creepage distances  10.4 Clearances and creepage distances  10.5 Protection against electric shock  10.6 Incorporation of switching devices and components  10.7 Internal electrical circuits and connections  10.8 Connections for external conductors  10.9 Insulation properties  10.9.1 Power-frequency electric strength  10.9.2 Power-frequency electric strength  10.9.3 Impulse withstand voltage  10.9.4 Testing of enclosures made of insulating material  10.10 Temperature rise  10.11 Short-circuit rating  10.12 Electromagnetic compatibility  10.13 Mechanical function  The device meets the requirements, rovoided the information in the instruction	10.2.2 Corrosion resistance			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  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  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.  10.9 Insulation properties  10.9.2 Power-frequency electric strength  10.9.2 Power-frequency electric strength  10.9.3 Impulse withstand voltage  10.9.4 Testing of enclosures made of insulating material  10.10 Temperature rise  The panel builder's responsibility.  10.10 Temperature rise  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	10.2.3.1 Verification of thermal stability of enclosures			Meets the product standard's requirements.
and fire due to internal electric effects  10.2.4 Resistance to ultra-violet (UV) radiation  10.2.5 Lifting  10.2.6 Mechanical impact  10.2.6 Mechanical impact  10.2.7 Inscriptions  Meets the product standard's requirements.  10.3 Degree of protection of ASSEMBLIES  10.3 Degree of protection of ASSEMBLIES  10.4 Clearances and creepage distances  10.5 Protection against electric shock  10.6 Incorporation of switching devices and components  10.7 Internal electrical circuits and connections  10.8 Connections for external conductors  10.9 Insulation properties  10.9.2 Power-frequency electric strength  10.9.3 Impulse withstand voltage  10.9.4 Testing of enclosures made of insulating material  10.10 Temperature rise  10.10 Temperature rise  10.11 Short-circuit rating  10.12 Electromagnetic compatibility  10.13 Mechanical function  The device meets the requirements, provided the information in the instruction	10.2.3.2 Verification of resistance of insulating materials to normal heat			Meets the product standard's requirements.
10.2.5 Lifting 10.2.6 Mechanical impact 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 10.6 Incorporation of switching devices and components 10.7 Internal electrical circuits and connections 10.8 Connections for external conductors 10.9 Insulation properties 10.9 Power-frequency electric strength 10.9.1 Supplies withstand voltage 10.9.4 Testing of enclosures made of insulating material 10.10 Temperature rise 10.10 Temperature rise 10.11 Short-circuit rating 10.12 Electromagnetic compatibility 10.13 Mechanical function 10.13 Mechanical function 10.13 Mechanical function 10.14 Meets the product standard's requirements.  Meets the product standard's requirements.  Does not apply, since the entire switchgear needs to be evaluated.  Does not apply, since the entire switchgear needs to be evaluated.  Does not apply, since the entire switchgear needs to be evaluated.  Does not apply, since the entire switchgear needs to be evaluated.  Does not apply, since the entire switchgear needs to be evaluated.  Does not apply, since the entire switchgear needs to be evaluated.  Does not apply, since the entire switchgear needs to be evaluated.  Does not apply, since the entire switchgear needs to be evaluated.  Does not apply, since the entire switchgear needs to be evaluated.  Does not apply, since the entire switchgear needs to be evaluated.  Does not apply, since the entire switchgear needs to be evaluated.  Does not apply, since the entire switchgear needs to be evaluated.  In the panel builder's responsibility.  Is the panel builder's responsibility.  Is the panel builder's responsibility. The specifications for the switchgear must be observed.  In the device meets the requirements, provided the information in the instruction				Meets the product standard's requirements.
10.2.6 Mechanical impact 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.  10.9.1 Insulation properties Is the panel builder's responsibility.  10.9.2 Power-frequency electric strength 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 The panel builder's responsibility.  10.11 Short-circuit rating Is the panel builder's responsibility.  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	10.2.4 Resistance to ultra-violet (UV) radiation			Meets the product standard's requirements.
Meets the product standard's requirements.  10.3 Degree of protection of ASSEMBLIES  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  10.7 Internal electrical circuits and connections  10.8 Connections for external conductors  10.9 Insulation properties  10.9.2 Power-frequency electric strength  10.9.3 Impulse withstand voltage  10.9.4 Testing of enclosures made of insulating material  10.10 Temperature rise  10.11 Short-circuit rating  10.12 Electromagnetic compatibility  10.13 Mechanical function  Meets the product standard's requirements.  Does not apply, since the entire switchgear needs to be evaluated.  10.5 Protection against electric shoek  Does not apply, since the entire switchgear needs to be evaluated.  10.6 Incorporation of switching devices and components  Is the panel builder's responsibility.  10.9 Insulation properties  10.10 Femperature rise  The panel builder's responsibility.  10.11 Short-circuit rating  10.12 Electromagnetic compatibility  10.13 Mechanical function  The device meets the requirements, provided the information in the instruction	10.2.5 Lifting			Does not apply, since the entire switchgear needs to be evaluated.
10.3 Degree of protection of ASSEMBLIES  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.  10.9.3 Impulse withstand voltage  Is the panel builder's responsibility.  10.10 Temperature rise  The panel builder is responsibility.  10.11 Short-circuit rating  Is the panel builder's responsibility. The specifications for the switchgear must be observed.  10.12 Electromagnetic compatibility  The device meets the requirements, provided the information in the instruction	10.2.6 Mechanical impact			Does not apply, since the entire switchgear needs to be evaluated.
10.4 Clearances and creepage distances  10.5 Protection against electric shock  10.6 Incorporation of switching devices and components  10.7 Internal electrical circuits and connections  10.8 Connections for external conductors  10.9 Insulation properties  10.9.2 Power-frequency electric strength  10.9.3 Impulse withstand voltage  10.9.4 Testing of enclosures made of insulating material  10.10 Temperature rise  10.11 Short-circuit rating  10.12 Electromagnetic compatibility  10.13 Mechanical function  Meets the product standard's requirements.  Does not apply, since the entire switchgear needs to be evaluated.  Is the panel builder's responsibility.  In the panel builde	10.2.7 Inscriptions			Meets the product standard's requirements.
10.5 Protection against electric shock  10.6 Incorporation of switching devices and components  10.7 Internal electrical circuits and connections  10.8 Connections for external conductors  10.9 Insulation properties  10.9.2 Power-frequency electric strength  10.9.3 Impulse withstand voltage  10.9.4 Testing of enclosures made of insulating material  10.10 Temperature rise  10.11 Short-circuit rating  10.12 Electromagnetic compatibility  10.13 Mechanical function  Does not apply, since the entire switchgear needs to be evaluated.  Does not apply, since the entire switchgear needs to be evaluated.  Does not apply, since the entire switchgear needs to be evaluated.  Does not apply, since the entire switchgear needs to be evaluated.  Is the panel builder's responsibility.  Is the panel builder's responsibility.  Is the panel builder's responsibility.  The panel builder's responsibility.  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	10.3 Degree of protection of ASSEMBLIES			Does not apply, since the entire switchgear needs to be evaluated.
Does not apply, since the entire switchgear needs to be evaluated.  10.7 Internal electrical circuits and connections  10.8 Connections for external conductors  10.9 Insulation properties  10.9.2 Power-frequency electric strength  10.9.3 Impulse withstand voltage  10.9.4 Testing of enclosures made of insulating material  10.10 Temperature rise  10.11 Short-circuit rating  10.12 Electromagnetic compatibility  10.13 Mechanical function  Does not apply, since the entire switchgear needs to be evaluated.  Is the panel builder's responsibility.  Is the panel builder's responsibility.  Is the panel builder's responsibility.  The panel builder's responsibility.  Is the panel builder is responsibility.  Is the panel builder is responsibility.  Is the panel builder's responsibility.  The panel builder's responsibility. The specifications for the switchgear must be observed.  Is the panel builder's responsibility. The specifications for the switchgear must be observed.  The device meets the requirements, provided the information in the instruction	10.4 Clearances and creepage distances			Meets the product standard's requirements.
10.7 Internal electrical circuits and connections  10.8 Connections for external conductors  10.9 Insulation properties  10.9.2 Power-frequency electric strength  10.9.3 Impulse withstand voltage  10.9.4 Testing of enclosures made of insulating material  10.10 Temperature rise  10.11 Short-circuit rating  10.12 Electromagnetic compatibility  10.13 Mechanical function  Is the panel builder's responsibility.  Is the panel builder's responsibility.  Is the panel builder's responsibility.  The panel builder is responsibility.  Is the panel builder is responsibility. The specifications for the switchgear must be observed.  Is the panel builder's responsibility. The specifications for the switchgear must be observed.  Is the panel builder's responsibility. The specifications for the switchgear must be observed.  The device meets the requirements, provided the information in the instruction	10.5 Protection against electric shock			Does not apply, since the entire switchgear needs to be evaluated.
10.8 Connections for external conductors  10.9 Insulation properties  10.9.2 Power-frequency electric strength  10.9.3 Impulse withstand voltage  10.9.4 Testing of enclosures made of insulating material  10.10 Temperature rise  10.11 Short-circuit rating  10.12 Electromagnetic compatibility  10.13 Mechanical function  10.13 Mechanical function  10.14 Short-circuit reservable for the switchgear must be observed.  10.15 The device meets the requirements, provided the information in the instruction	10.6 Incorporation of switching devices and components			Does not apply, since the entire switchgear needs to be evaluated.
10.9.2 Power-frequency electric strength  10.9.3 Impulse withstand voltage  10.9.4 Testing of enclosures made of insulating material  10.10 Temperature rise  10.11 Short-circuit rating  10.12 Electromagnetic compatibility  10.13 Mechanical function  Is the panel builder's responsibility.  Is the panel builder is responsibility.  The panel builder is responsibile 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.  The panel builder's responsibility. The specifications for the switchgear must be observed.  The device meets the requirements, provided the information in the instruction	10.7 Internal electrical circuits and connections			Is the panel builder's responsibility.
10.9.2 Power-frequency electric strength  10.9.3 Impulse withstand voltage  10.9.4 Testing of enclosures made of insulating material  10.10 Temperature rise  10.11 Short-circuit rating  10.12 Electromagnetic compatibility  10.13 Mechanical function  Is the panel builder's responsibility.  Is 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.  In the panel builder's responsibility. The specifications for the switchgear must be observed.  In the device meets the requirements, provided the information in the instruction	10.8 Connections for external conductors			Is the panel builder's responsibility.
10.9.3 Impulse withstand voltage  10.9.4 Testing of enclosures made of insulating material  10.10 Temperature rise  10.11 Short-circuit rating  10.12 Electromagnetic compatibility  10.13 Mechanical function  Is the panel builder's responsibility.  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  The device meets the requirements, provided the information in the instruction	10.9 Insulation properties			
10.9.4 Testing of enclosures made of insulating material  10.10 Temperature rise  The panel builder is responsibile 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	10.9.2 Power-frequency electric strength			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	10.9.3 Impulse withstand voltage			Is the panel builder's responsibility.
provide heat dissipation data for the devices.  10.11 Short-circuit rating  1s the panel builder's responsibility. The specifications for the switchgear must be observed.  10.12 Electromagnetic compatibility  1s 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	10.9.4 Testing of enclosures made of insulating material			Is the panel builder's responsibility.
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	10.10 Temperature rise			
observed.  10.13 Mechanical function  The device meets the requirements, provided the information in the instruction	10.11 Short-circuit rating			
	10.12 Electromagnetic compatibility			
	10.13 Mechanical function			

### **Technical data ETIM 7.0**

Low-voltage industrial components (EG000017) / Frequency converter =< 1 kV (EC001857)

Electric engineering, automation, process control engineering / Electrical drive / Static frequency converter / Static frequency converter = < 1 kV (ecl@ss10.0.1-27-02-31-01 [AKE177014])			
Mains voltage	V	525 - 690	
Mains frequency		50/60 Hz	
Number of phases input		3	
Number of phases output		3	
Max. output frequency	Hz	320	
Max. output voltage	V	690	
Nominal output current I2N	А	261	
Max. output at quadratic load at rated output voltage	kW	250	

Relative symmetric net frequency tolerance Relative symmetric net voltage tolerance Number of analogue outputs Number of analogue inputs Number of digital outputs Number of digital inputs With control unit Application in industrial area permitted Application in domestic- and commercial area permitted		200 10 10 1 1 2 1 6 Yes
Relative symmetric net voltage tolerance  Number of analogue outputs  Number of analogue inputs  Number of digital outputs  Number of digital inputs  With control unit  Application in industrial area permitted  Application in domestic- and commercial area permitted	%	10 1 2 1 6 Yes
Number of analogue outputs  Number of analogue inputs  Number of digital outputs  Number of digital inputs  With control unit  Application in industrial area permitted  Application in domestic- and commercial area permitted		1 2 1 6 Yes Yes
Number of analogue inputs  Number of digital outputs  Number of digital inputs  With control unit  Application in industrial area permitted  Application in domestic- and commercial area permitted		2 1 6 Yes Yes
Number of digital outputs  Number of digital inputs  With control unit  Application in industrial area permitted  Application in domestic- and commercial area permitted		1 6 Yes Yes
Number of digital inputs  With control unit  Application in industrial area permitted  Application in domestic- and commercial area permitted		6 Yes Yes
With control unit  Application in industrial area permitted  Application in domestic- and commercial area permitted		Yes Yes
Application in industrial area permitted  Application in domestic- and commercial area permitted		Yes
Application in domestic- and commercial area permitted		
		Yes
Supporting protocol for TCP/IP		Yes
Supporting protocol for PROFIBUS		Yes
Supporting protocol for CAN		Yes
Supporting protocol for INTERBUS		No
Supporting protocol for ASI		No
Supporting protocol for KNX		No
Supporting protocol for MODBUS		No
Supporting protocol for Data-Highway		Yes
Supporting protocol for DeviceNet		Yes
Supporting protocol for SUCONET		No
Supporting protocol for LON		Yes
Supporting protocol for PROFINET IO		No
Supporting protocol for PROFINET CBA		No
Supporting protocol for SERCOS		No
Supporting protocol for Foundation Fieldbus		No
Supporting protocol for EtherNet/IP		No
Supporting protocol for AS-Interface Safety at Work		No
Supporting protocol for DeviceNet Safety		No
Supporting protocol for INTERBUS-Safety		No
Supporting protocol for PROFIsafe		No
Supporting protocol for SafetyBUS p		No
Supporting protocol for BACnet		No
Supporting protocol for other bus systems		Yes
Number of HW-interfaces industrial Ethernet		0
Number of interfaces PROFINET		0
Number of HW-interfaces RS-232		0
Number of HW-interfaces RS-422		0
Number of HW-interfaces RS-485		1
Number of HW-interfaces serial TTY		0
Number of HW-interfaces USB		0
Number of HW-interfaces parallel		0
Number of HW-interfaces other		1
With optical interface		No
With PC connection		Yes
Integrated breaking resistance		No
4-quadrant operation possible		Yes
Type of converter		U converter
Degree of protection (IP)		IP00
Degree of protection (NEMA)		Other
Height	mm	1165
Width	mm	500
Depth	mm	506

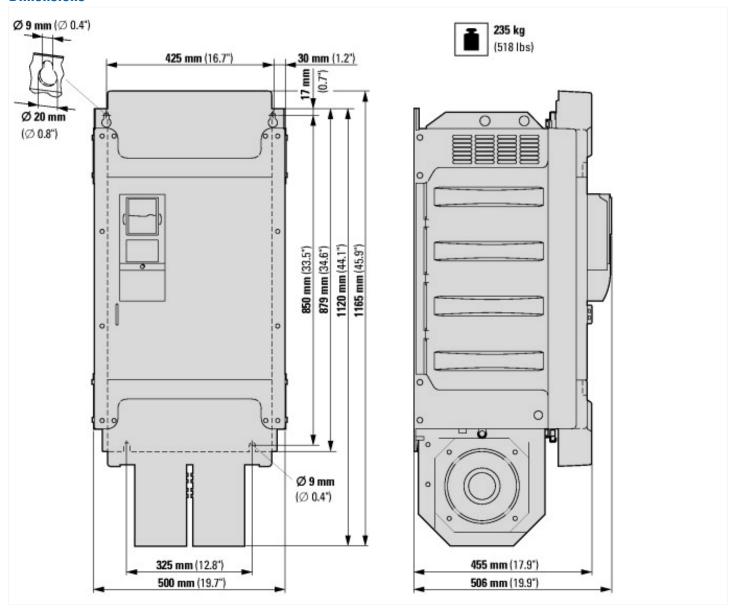
# Approvals

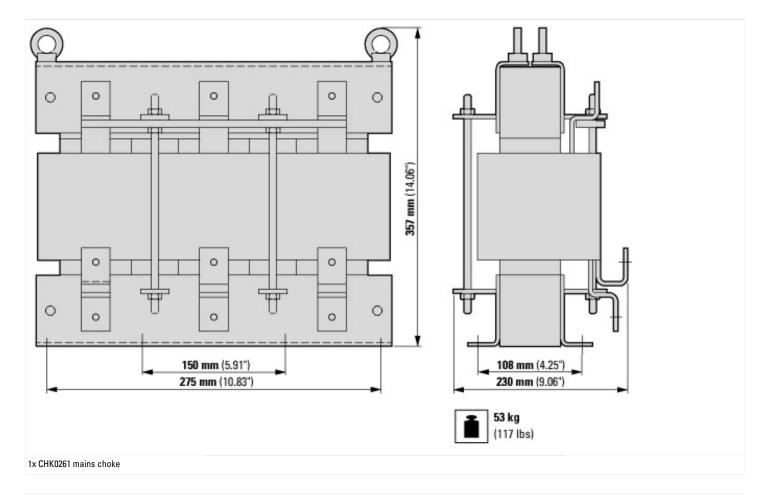
Product Standards

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

UL File No.	E134360
UL Category Control No.	NMMS, NMMS2, NMMS7. NMMS8
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 Wey)
Degree of Protection	IEC: IP00

### **Dimensions**





#### **Assets (links)**

**Declaration of CE Conformity** 

00002807

**Instruction Leaflets** 

IL04020008Z2018\_05

## **Additional product information (links)**

IL04020008Z Frequency inverter 9000X	
IL04020008Z Frequency inverter 9000X	ftp://ftp.moeller.net/DOCUMENTATION/AWA_INSTRUCTIONS/IL04020008Z2018_05.pdf
Documentation	http://www.eaton.eu/Europe/Electrical/ProductsServices/AutomationControl/SwitchingProtectingDrivingMotors/9000X/SPX9000/index.htm#tabs-4