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Data sheet for SINAMICS G120X

Article No. : 6SL3220-1YE50-1AF0



Figure similar

Client order no. :
Order no. :
Offer no. :
Remarks :

Item no. :
Consignment no. :
Project :

Rated data

Input		
Number of phases	3 AC	
Line voltage	380 ... 480 V +10 % -20 %	
Line frequency	47 ... 63 Hz	
Rated voltage	**400V IEC**	**480V NEC**
Rated current (LO)	301.00 A	301.00 A
Rated current (HO)	275.00 A	263.00 A
Output		
Number of phases	3 AC	
Rated voltage	**400V IEC**	**480V NEC** [1]
Rated power (LO)	160.00 kW	250.00 hp
Rated power (HO)	132.00 kW	200.00 hp
Rated current (LO)	302.00 A	302.00 A
Rated current (HO)	250.00 A	240.00 A
Rated current (IN)	309.00 A	
Max. output current	408.00 A	
Pulse frequency	2 kHz	
Output frequency for vector control	0 ... 200 Hz	
Output frequency for V/f control	0 ... 550 Hz	
Overload capability		
Low Overload (LO)		
110% base load current IL for 60 s in a 300 s cycle time		
High Overload (HO)		
150% x base load current IH for 60 s within a 600 s cycle time		

General tech. specifications

Power factor λ	0.90 ... 0.95
Offset factor cos φ	0.99
Efficiency η	0.98
Sound pressure level (1m)	74 dB
Power loss [3]	3.660 kW
Filter class (integrated)	RFI suppression filter for Category C2
EMC category (with accessories)	Category C2
Safety function "Safe Torque Off"	without SIRIUS device (e.g. via S7-1500F)

Communication

Communication	PROFINET, EtherNet/IP

Inputs / outputs

Standard digital inputs	
Number	6
Switching level: 0 → 1	11 V
Switching level: 1 → 0	5 V
Max. inrush current	15 mA
Fail-safe digital inputs	
Number	1
Digital outputs	
Number as relay changeover contact	2
Output (resistive load)	DC 30 V, 5.0 A
Number as transistor	0
Analog / digital inputs	
Number	2 (Differential input)
Resolution	10 bit
Switching threshold as digital input	
0 → 1	4 V
1 → 0	1.6 V
Analog outputs	
Number	1 (Non-isolated output)
PTC/ KTY interface	
1 motor temperature sensor input, sensors that can be connected PTC, KTY and Thermo-Click, accuracy ±5 °C	

Closed-loop control techniques

V/f linear / square-law / parameterizable	Yes
V/f with flux current control (FCC)	Yes
V/f ECO linear / square-law	Yes
Sensorless vector control	Yes
Vector control, with sensor	No
Encoderless torque control	No
Torque control, with encoder	No

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Ambient conditions

Standard board coating type	Class 3C2, according to IEC 60721-3-3: 2002
Cooling	Air cooling using an integrated fan
Cooling air requirement	0.210 m³/s (7.416 ft³/s)
Installation altitude	1,000 m (3,280.84 ft)
Ambient temperature	
Operation	-20 ... 45 °C (-4 ... 113 °F)
Transport	-40 ... 70 °C (-40 ... 158 °F)
Storage	-25 ... 55 °C (-13 ... 131 °F)
Relative humidity	
Max. operation	95 % At 40 °C (104 °F), condensation and icing not permissible

Connections

Signal cable	
Conductor cross-section	0.15 ... 1.50 mm² (AWG 24 ... AWG 16)
Line side	
Version	M10 screw
Conductor cross-section	35.00 ... 2 x 185.00 mm² (AWG 1 ... MCM 2 x 350)
Motor end	
Version	M10 screw
Conductor cross-section	35.00 ... 2 x 185.00 mm² (AWG 1 ... MCM 2 x 350)
DC link (for braking resistor)	
PE connection	M10 screw
Max. motor cable length	
Shielded	150 m (492.13 ft)

Mechanical data

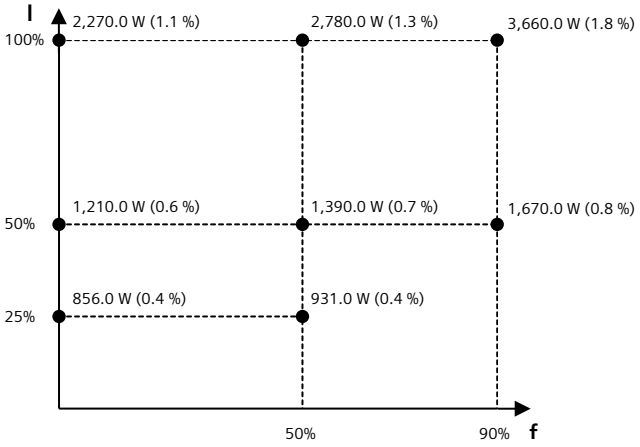
Degree of protection	IP20 / UL open type
Frame size	FSG
Net weight	105 kg (231.49 lb)
Dimensions	
Width	305 mm (12.01 in)
Height	999 mm (39.33 in)
Depth	369 mm (14.53 in)

Standards

Compliance with standards	UL, cUL, CE, C-Tick (RCM), EAC, KCC, SEMI F47, REACH
CE marking	EMC Directive 2004/108/EC, Low-Voltage Directive 2006/95/EC

Converter losses to IEC61800-9-2*

Efficiency class	IE2
Comparison with the reference converter (90% / 100%)	43.0 %



The percentage values show the losses in relation to the rated apparent power of the converter.

The diagram shows the losses for the points (as per standard IEC61800-9-2) of the relative torque generating current (I) over the relative motor stator frequency (f). The values are valid for the basic version of the converter without options/components.

*calculated values

[1] The output current and HP ratings are valid for the voltage range 440V-480V

[3] Typical value. More information can be found in the element group "Converter losses to IEC 61800-9-2" in this datasheet.

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I/O Extension Module

Inputs / outputs

Digital inputs

Number of digital inputs [1]	
Conductor cross-section	... mm² (AWG ... AWG)
Input voltage (0→1)	V
Input voltage (1→0)	V
Input voltage, max.	V

Digital outputs

Number of digital outputs	
Conductor cross-section	mm² (AWG)
Output current [2]	A

Analog inputs

Number of analog inputs [3]	
Conductor cross-section	... mm² (AWG ... AWG)
Current	... mA

Analog outputs

Number of analog outputs	
Type of analog outputs [4]	
Conductor cross-section	... mm² (AWG ... AWG)
Output voltage	... V
Output current	... mA

Mechanical data

Dimensions

Width	mm (in)
Height	mm (in)
Depth	mm (in)

1)
2)
3)
4)