

## Data sheet for SINAMICS G120X

Article No. : 6SL3220-1YH68-0CF0



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	500 ... 690 V +10 % -10 %	
Line frequency	47 ... 63 Hz	
<b>Rated voltage</b>	<b>690V IEC</b>	<b>600V NEC</b>
Rated current (LO)	675.00 A	737.00 A
Rated current (HO)	552.00 A	602.00 A

#### Output

Number of phases	3 AC	
<b>Rated voltage</b>	<b>690V IEC</b>	<b>600V NEC <sup>1)</sup></b>
Rated power (LO)	630.00 kW	700.00 hp
Rated power (HO)	560.00 kW	500.00 hp
Rated current (LO)	650.00 A	679.00 A
Rated current (HO)	532.00 A	580.00 A
Rated current (IN)	725.00 A	
Max. output current	959.00 A	

Pulse frequency	2 kHz	
Output frequency for vector control	0 ... 100 Hz	
Output frequency for V/f control	0 ... 100 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 300 s cycle time

### General tech. specifications

Power factor $\lambda$	0.75 ... 0.93
Offset factor $\cos \phi$	0.96
Efficiency $\eta$	0.98
Sound pressure level (1m)	74 dB
Power loss <sup>3)</sup>	11.400 kW
Filter class (integrated)	RFI suppression filter for Category C3
EMC category (with accessories)	Category C3
Safety function "Safe Torque Off"	without SIRIUS device (e.g. via S7-1500F)

### Communication

Communication	PROFINET, EtherNet/IP
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### 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
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#### 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)
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#### PTC/ KTY interface

1 motor temperature sensor input, sensors that can be connected PTC, KTY and Thermo-Click, accuracy  $\pm 5$  °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	0.450 m <sup>3</sup> /s (15.892 ft <sup>3</sup> /s)
Installation altitude	1,000 m (3,280.84 ft)
<b>Ambient temperature</b>	
Operation	0 ... 45 °C (32 ... 113 °F)
Transport	-40 ... 70 °C (-40 ... 158 °F)
Storage	-25 ... 55 °C (-13 ... 131 °F)
<b>Relative humidity</b>	
Max. operation	95 % At 40 °C (104 °F), condensation and icing not permissible

### Connections

<b>Signal cable</b>	
Conductor cross-section	0.15 ... 1.50 mm <sup>2</sup> (AWG 24 ... AWG 16)
<b>Line side</b>	
Version	M12 screw
Conductor cross-section	6 x 240.00 mm <sup>2</sup> (MCM 4 x 500 ... MCM 6 x 500)
<b>Motor end</b>	
Version	M12 screw
Conductor cross-section	6 x 240.00 mm <sup>2</sup> (MCM 4 x 500 ... MCM 8 x 500)
<b>DC link (for braking resistor)</b>	
PE connection	M12 screw
<b>Max. motor cable length</b>	
Shielded	150 m (492.13 ft)

### Mechanical data

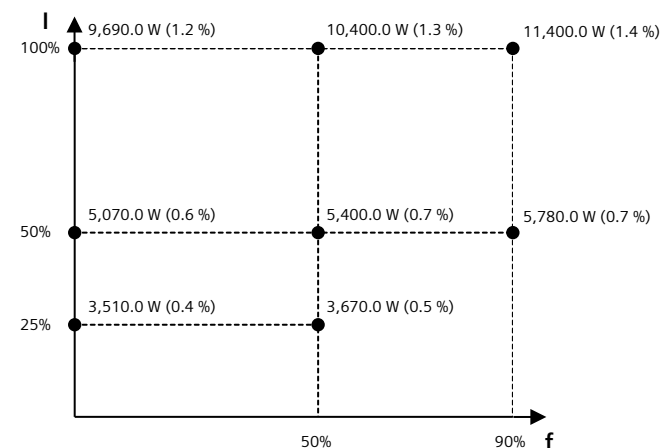
Degree of protection	IP20 / UL open type
Frame size	FSJ
Net weight	246 kg (542.34 lb)
<b>Dimensions</b>	
Width	801 mm (31.54 in)
Height	1,621 mm (63.82 in)
Depth	393 mm (15.47 in)

### 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%)	35.1 %



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.

\*converted values

<sup>1)</sup>The output current and HP ratings are valid for the voltage range 550V-600V

<sup>3)</sup>Typical value. More information can be found in the element group "Converter losses to IEC 61800-9-2" in this datasheet.