

## Data sheet for SINAMICS G120X

Article No. : 6SL3220-1YE44-0AF0



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	
<b>Rated voltage</b>	<b>400V IEC</b>	<b>480V NEC</b>
Rated current (LO)	172.00 A	151.00 A
Rated current (HO)	154.00 A	132.00 A

#### Output

Number of phases	3 AC	
<b>Rated voltage</b>	<b>400V IEC</b>	<b>480V NEC <sup>1)</sup></b>
Rated power (LO)	90.00 kW	125.00 hp
Rated power (HO)	75.00 kW	100.00 hp
Rated current (LO)	178.00 A	156.00 A
Rated current (HO)	145.00 A	124.00 A
Rated current (IN)	183.00 A	
Max. output current	241.00 A	

Pulse frequency	4 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 $\lambda$	0.90 ... 0.95
Offset factor $\cos \phi$	0.99
Efficiency $\eta$	0.97
Sound pressure level (1m)	72 dB
Power loss <sup>3)</sup>	2.610 kW
Filter class (integrated)	RFI suppression filter for Category C2
EMC category (with accessories)	Category C2
Safety function "Safe Torque Off"	without

### 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	
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### 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	0.153 m <sup>3</sup> /s (5.403 ft <sup>3</sup> /s)
Installation altitude	1,000 m (3,280.84 ft)
<b>Ambient temperature</b>	
Operation	-20 ... 45 °C (-4 ... 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	M10 screw
Conductor cross-section	35.00 ... 2 x 120.00 mm <sup>2</sup> (AWG 1 ... AWG 2 x 4/0)
<b>Motor end</b>	
Version	M10 screw
Conductor cross-section	35.00 ... 2 x 120.00 mm <sup>2</sup> (AWG 1 ... AWG 2 x 4/0)
<b>DC link (for braking resistor)</b>	
PE connection	M10 screw
<b>Max. motor cable length</b>	
Shielded	150 m (492.13 ft)

### Mechanical data

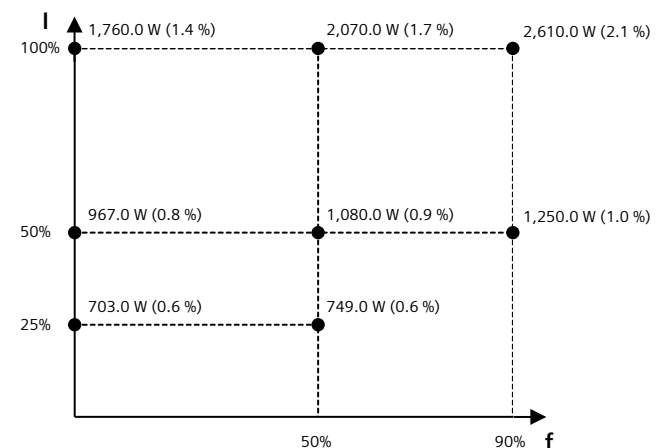
Degree of protection	IP20 / UL open type
Frame size	FSF
Net weight	68 kg (149.91 lb)
<b>Dimensions</b>	
Width	305 mm (12.01 in)
Height	709 mm (27.91 in)
Depth	369 mm (14.53 in)

### 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%)	51.4 %



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 440V-480V

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