

# SIEMENS

## Data sheet for SINAMICS G120X



Figure similar

### MLFB-Ordering data

6SL3220-1YE16-0AF0

Client order no. :

Order no. :

Offer no. :

Remarks :

Item no. :

Consignment no. :

Project :

Rated data			General tech. specifications	
<b>Input</b>			<b>Power factor <math>\lambda</math></b>	0.70 ... 0.85
<b>Number of phases</b>	3 AC		<b>Offset factor <math>\cos \varphi</math></b>	0.96
<b>Line voltage</b>	380 ... 480 V +10 % -20 %		<b>Efficiency <math>\eta</math></b>	0.98
<b>Line frequency</b>	47 ... 63 Hz		<b>Sound pressure level (1m)</b>	55 dB
<b>Rated voltage</b>	<b>400V IEC</b>	<b>480V NEC</b>	<b>Power loss</b>	0.080 kW
<b>Rated current (LO)</b>	5.50 A	4.60 A	<b>Filter class (integrated)</b>	RFI suppression filter for Category C2
<b>Rated current (HO)</b>	3.82 A	3.00 A	<b>Ambient conditions</b>	
<b>Output</b>			<b>Standard board coating type</b>	Class 3C2, according to IEC 60721-3-3: 2002
<b>Number of phases</b>	3 AC		<b>Cooling</b>	Air cooling using an integrated fan
<b>Rated voltage</b>	<b>400V IEC</b>	<b>480V NEC</b>	<b>Cooling air requirement</b>	0.005 m³/s (0.177 ft³/s)
<b>Rated power (LO)</b>	2.20 kW	3.00 hp	<b>Installation altitude</b>	1000 m (3280.84 ft)
<b>Rated power (HO)</b>	1.50 kW	2.00 hp	<b>Ambient temperature</b>	
<b>Rated current (LO)</b>	5.90 A	4.80 A	<b>Operation</b>	-20 ... 45 °C (-4 ... 113 °F)
<b>Rated current (HO)</b>	4.10 A	3.40 A	<b>Transport</b>	-40 ... 70 °C (-40 ... 158 °F)
<b>Rated current (IN)</b>	6.10 A		<b>Storage</b>	-25 ... 55 °C (-13 ... 131 °F)
<b>Max. output current</b>	6.40 A		<b>Relative humidity</b>	
<b>Pulse frequency</b>	4 kHz		<b>Max. operation</b>	95 % At 40 °C (104 °F), condensation and icing not permissible
<b>Output frequency for vector control</b>	0 ... 200 Hz			
<b>Output frequency for V/f control</b>	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

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#### Mechanical data

Degree of protection	IP20 / UL open type
Size	FSA
Net weight	3 kg (7.50 lb)
Width	73 mm (2.87 in)
Height	232 mm (9.13 in)
Depth	209 mm (8.23 in)

#### 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	Yes
Torque control, with encoder	No

#### Communication

Communication	PROFINET, EtherNet/IP
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#### Connections

##### Signal cable

Conductor cross-section	0.15 ... 1.50 mm <sup>2</sup> (AWG 24 ... AWG 16)
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##### Line side

Version	screw-type terminal
Conductor cross-section	1.50 ... 2.50 mm <sup>2</sup> (AWG 16 ... AWG 14)

##### Motor end

Version	Screw-type terminals
Conductor cross-section	1.50 ... 2.50 mm <sup>2</sup> (AWG 16 ... AWG 14)

##### DC link (for braking resistor)

PE connection	On housing with M4 screw
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##### Max. motor cable length

Shielded	150 m (492.13 ft)
Unshielded	300 m (984.25 ft)



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Converter losses to EN 50598-2*																										
Efficiency class	IE2																									
Comparison with the reference converter (90% / 100%)	-33.30 %																									
<table><tr><th>Relative torque (I)</th><th>Frequency (f)</th><th>Losses (W)</th><th>Losses (%)</th></tr><tr><td rowspan="2">100%</td><td>50%</td><td>65.8 W</td><td>1.61 %</td></tr><tr><td>90%</td><td>75.4 W</td><td>1.84 %</td></tr><tr><td rowspan="2">50%</td><td>50%</td><td>51.2 W</td><td>1.25 %</td></tr><tr><td>90%</td><td>55.2 W</td><td>1.35 %</td></tr><tr><td rowspan="2">25%</td><td>50%</td><td>45.3 W</td><td>1.11 %</td></tr><tr><td>90%</td><td>47 W</td><td>1.15 %</td></tr></table>		Relative torque (I)	Frequency (f)	Losses (W)	Losses (%)	100%	50%	65.8 W	1.61 %	90%	75.4 W	1.84 %	50%	50%	51.2 W	1.25 %	90%	55.2 W	1.35 %	25%	50%	45.3 W	1.11 %	90%	47 W	1.15 %
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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

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 EN 50598) 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